



Operation for Correcting the Deformity of Undeveloped Lower Jaw or Receding Chin.

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Text-books and current literature contain very little on the surgical treatment of the deformities or malformations of the jaw, and it is surprising that more work has not been done in this field or reported, especially when one considers the advancement that has been made in surgery and the development of orthodontic practice.

Preparatory to the operation herein reported a thorough search was made and there could be found only four articles on this subject, two by Dr. V. P. Blair, of St. Louis; one by Dr. E. S. Talbot, of Chicago, and one by Dr. W. W. Babcock, of Philadelphia.*

Dr. Babcock, in giving the history of this subject in his paper states that, "Dr. S. P. Hullihen, of Wheeling, Ga., successfully devised and performed an osteoplastic resection of the jaw." This case was reported in the *American Journal of Dental Science* in 1849. The next case noted was fifty years later when Dr. Edw. W. Angle suggested bilateral V-shaped resection of the jaw. One year later "Dr. V. P. Blair performed

*See also "Double Resection for Treatment of Mandibular Protrusion," by Max Ballen, M.D.—ITEMS OF INTEREST, June, 1908. Page 423.—Editor.

this operation through angular incisions below the jaw." Rodrigues Ottolengui, in 1896, advocated the same operation. The above operations were done for elongation of the lower jaw.

Dr. Blair, in the *Journal of Surgery, Gynaecology and Obstetrics*, January, 1907, describes his operation for receding jaw, which pro-



FIG. I.

Fig. I.—Incision and passage of needle behind jaw.

cedures (kindly furnished us by Dr. LeGrand Cox) it was our endeavor to follow in the following case, operated on July 31, 1909.

History of Patient.

The patient's history was as follows: Young white woman; age twenty-five years; thin, delicate; suffers considerably with indigestion. When five years of age had a fall, striking her chin on the sharp edge of a chisel. The wound healed and there was apparently no bad effect from the fall at the time. Two years later she was taken to a dentist on account of her teeth, and it was noticed then for the first time that she could only partially open her mouth. The downward excursion of the lower jaw gradually became less and less, until finally,

about four years after the injury, the jaws were absolutely locked and no movement of them whatever could be detected. She had consulted several men about the condition, and attempts at various times had been made to open the mouth by use of powerful mouth gags, without results. It had been necessary to remove several teeth, the upper and



FIG. 2.

Fig. 2.—Needle brought through punctures in cheek and Gigli saw threaded.

lower incisors, to enable her to take nourishment. Her remaining teeth were deformed and in bad condition. It was impossible for her to cleanse them, and, in consequence, they were decayed and frequently abscessed.

Her general health had been very poor since she was sixteen years of age. Was operated on for floating kidney in 1903; one year later the vermiform appendix was removed and both ovaries resected.

When patient consulted, the body of the lower jaw was found undeveloped, receding in consequence.

The body of the jaw from the angle and the chin were the size of a child's. The jaws were locked, absolutely no motion could be detected. Her teeth were in bad condition; those in the lower jaw, on account of its recession, were behind the corresponding teeth in the upper jaw, and projected from the gum obliquely forward.



FIG. 3.

Gigli saw drawn through. Steel tube guides in place to protect tissues. Handles in place and saw in position to cut the bone.

Mouth hygiene being impossible, several teeth in both the upper and lower jaw were abscessed and caused her considerable pain. Her personal appearance was unattractive and her mouth most repulsive, the posterior teeth being completely covered with salivary calculus.

The condition of her mouth demanded that something be done to give her relief. The indications to be met were to provide a free opening to the mouth in order to accomplish dental work, mouth hygiene, etc., to establish as near normal as possible occlusion of the teeth, with motion, sufficient for function, in the lower jaw; to improve her personal appearance by bringing the chin forward and holding it there.

Diagnosis with X-Rays. Before deciding on operation, radiographs were taken by Dr. W. H. Johnson, and showed the following condition: A great enlargement of the condyloid process which is sufficient to ankylose the articulation. Also apparently a considerable lengthening of the coronoid

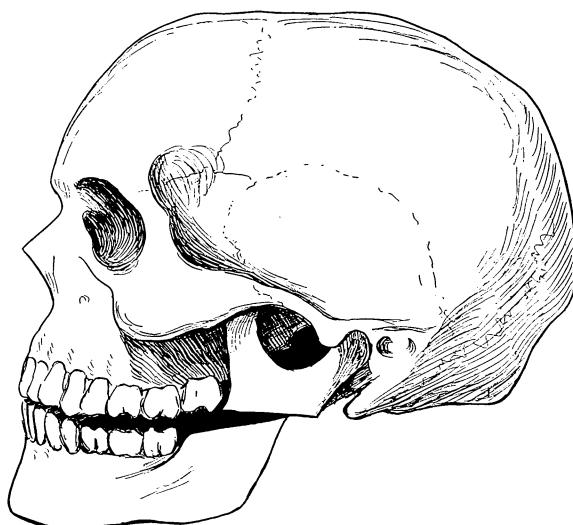


FIG. 4.

Fig. 4.—Showing saw-cuts in lower jaw. Body of jaw brought forward by sliding the lower fragment forward on the upper fragment. Upper fragment pulled upward by action of the temporal muscle.

process, *i. e.*, this process extends upward for a great distance and is lost in the temporal muscle. The plate does not show where the muscle starts and the bone stops. Instead of the body being at about a right angle to the ramus on the right side, the lower edge drops downward and forward at almost 45 degrees, and on the left side almost as much.

The upper aveolar process extending upward and forward makes the anterior convex surface much deeper, almost twice as deep as normal. The molar teeth posteriorly tend to incline forward instead of perpendicularly and the teeth further lock the jaw by being more or less dovetailed together.

The styloid process is clear of the ramus on the right side, but is not distinctly shown on the left side. The hyoid bone is not interfering. The body of the bone seems to have been bent downward, bending on itself near the ramus.

Operation. The method adopted was that of Dr. Blair and the operation presents three problems: "(1) The cutting of the bone which is the easiest of the three. (2) The placing the jaw in its new position. (3) Holding it there."

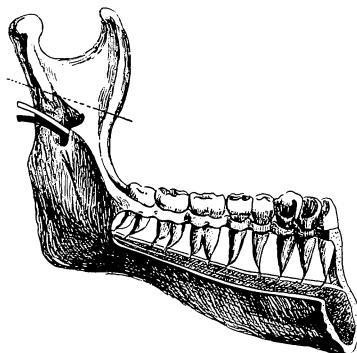


FIG. 5.

Fig. 5.—Normal jaw, inner side, showing inferior dental nerve and artery in opening to the inferior dental canal; also line of saw-cut.

Under ether anesthesia an incision one-half inch long was made through the skin in front of the lobe of the ear over the posterior border of the mandible. The incision was drawn forward, the parotid gland exposed and drawn backward, until the posterior border of the ramus was felt with the finger.

A stout curved needle on a handle was passed behind the ramus, hugging the bone closely; pushed forward it was brought out of the cheek one-quarter of an inch below the point of entrance without penetrating the mucous membrane of the mouth. A Gigly saw was now threaded on the needle, the needle withdrawn, leaving the saw in place. To prevent damage to the skin and other structures, a small steel tube was passed over each end of the saw down to the bone. The bone was then cut through obliquely downward and forward one-quarter of an inch lower on the anterior border than the posterior, the saw being held as straight as possible. This was repeated on the other side (Figs. 1, 2, 3, 4 and 5).

The needle used should have a blunt point so that it will dissect or separate the soft tissues from the inner surface of the bone and not

penetrate them. Care should be taken in passing the needle not to penetrate the cavity of the mouth, as troublesome infection may result.

The parotid gland should be held out of the way and protected; also the cervico-facial branch of the facial nerve, which is at the posterior border of the lower jaw.

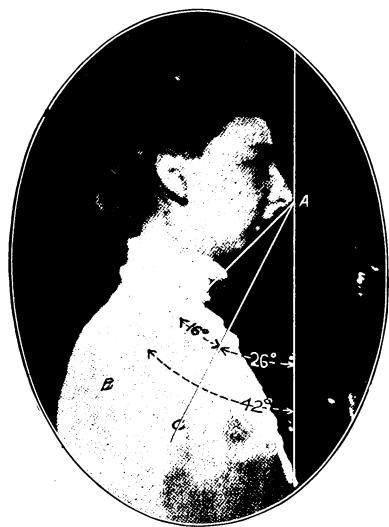


FIG. 6.



FIG. 7.

Fig. 6.—Side face before operation. Note marked receding chin and angle between nose and point of chin, 42° .

Fig. 7.—Side face after operation. Note angle between nose and chin, 26° , showing the distance that the chin has been advanced, 16° . The chin is still that of a child, and can be built up with paraffin or bone graft, which would add still more to her personal appearance. The picture is unretouched. Note that the scars in the cheek and at tip of ear do not show.

Avoid the temporomaxillary vein. The external carotid and internal maxillary arteries are well out of the way. The needle hugging the bone closely is passed above the opening of the inferior dental foramen. The ridge which is above this opening may be felt with the point of the needle, as it hugs the inner surface of the bone. In this way injury to the inferior dental nerve and artery is avoided, the needle and saw passing between them and the bone.

The incisions were packed with sterile gauze which controlled the slight hemorrhage and was left in place for two days. The incisions

having been protected the mouth was opened and the ramus was lengthened by stretching the muscles (masseters and internal pterygoids). This was done by putting a wedge between the molars on each side, forcing the chin upward. The body of the jaw was brought forward by sliding the lower fragment on the upper, thus lengthening the ramus,



FIG. 8.



FIG. 9.

Fig. 8.—Full face before operation, lips open. Note locking of jaws. Teeth in lower jaw bent obliquely forward from pressure. All teeth in upper jaw between first bicuspids and corresponding ones in lower jaw removed in order to give space to take nourishment (about ten).

Fig. 9.—Full face six months after operation. Note amount of opening between teeth, allowing for nourishment and mouth hygiene. False teeth-plate in lower jaw; bridge-work in upper. Patient has, by measurement, one quarter inch downward movement between molars, which is sufficient for chewing food.

until the teeth were slightly in front of those of the upper jaw. It was now wired in this position.

**Method of
Wiring.**

For this purpose florist's steel wire was used; it comes in twelve-inch lengths, both light and heavy, can be obtained at any flower shop, and combines great strength with flexibility. First, a length of

wire was twisted around the necks of each of the upper teeth and left hanging, then the lower teeth were similarly wired, and while assistants brought the jaw forward and held it in position, the upper and lower wires were twisted together and the ends cut off short with nippers. The upper teeth on each side were fastened to the corresponding lower teeth, except the lower second molars, which were wired obliquely forward to



FIG. 10.



FIG. 11.

Fig. 10.—Full face before operation; lips closed. Note marked dimple in chin on account of recession.

Fig. 11.—Full face after operation. Note changed expression—mouth and chin.

the upper first bicuspids, the better to keep the jaw from slipping back. When the wiring was finished the only teeth that articulated were the wisdom teeth, and it was plain that unless the other teeth were supported in some way the wires would not hold steadily, nor long enough for the union of the bone. On the spur of the moment, therefore, a mass of modelling compound was softened in boiling water and pushed between the teeth and all over the wires, thus serving the further important purpose of covering up the wire ends, which would otherwise have cut and irritated the inside of the cheeks. The compound served its purpose to perfection. For eight weeks it held the jaws fixed as if in a vise. There was very little irritation of the gums, and the compound having been



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pressed aside out of the way of the tongue, nourishment was administered through the opening in front where the incisors had long previously been extracted.

Post-Operative Treatment. Three days after operation the packing was removed and incisions closed by sutures that were put in place and left untied at the time of operation.

These incisions leaked saliva for three or four weeks on account of the injury to the parotid gland. Steno's duct was not injured, it being above the line of incisions and sawcut. The leak was from the gland itself. The tracts were cauterized with electric cautery and healed promptly, no further leakage taking place. The wires and compound were left in place for eight weeks and then removed; at the same time the teeth in the lower jaw, with the exception of the second molar on each side, were extracted on account of their position and condition. The teeth in the superior maxilla were not disturbed. The union in the bone was found strong and the chin was well forward.

Later the space in the upper jaw, between the bicuspids, was bridged and a clasp plate was made for the lower jaw. This, of course, added greatly to her appearance. On account of the deformity of the lower jaw, it was quite difficult to make a suitable and comfortable plate.

Among the complications that may occur in this operation are injury to the parotid gland and the nerves and vessels in this region. These can be avoided by careful work and a thorough understanding of the anatomy. Injury to the inferior dental nerve and artery need not give much concern. If the nerve is divided near the opening to the canal, it is the most favorable site for it to reunite. Division of the artery may give troublesome hemorrhage, but it can be easily controlled.

This operation is really the making of a double compound fracture of the lower jaw and some fear may be had of getting non-union or necrosis. Blair states that "ununited fracture of the lower jaw is rare, and in the whole of the Surgeon-General's Index there is not reported a single case in English, German or French literature of necrosis or loss of teeth from sections of the vertical or horizontal ramus." He believes that necrosis and failure to get union is due to local infection at the site of incisions.

Before operating on these cases, care should be taken to have the air passages clear and all sources of infection removed. The patient should be made aware of the possible complications, the amount of dental work to be done, and the tedious convalescence before final results can be obtained. As the completion of these cases requires skilled dental work, it is important to have one of this profession actively associated throughout.

We believe that the deformity in this case was the result of trauma received at the time of the injury to the chin by the fall on the chisel. This, we think, arrested the development of the body of the lower jaw from its angle. The ramus developed normally from the angle to the processes which are abnormally enlarged or developed and mechanically interfered with the movement.

The results obtained in this case have been most gratifying. The incisions behind the ramus and cheek punctures healed nicely, the scars being almost imperceptible. The patient's general health, particularly her digestion, is markedly improved. Her mouth is opened. She has a good set of teeth and is able to maintain mouth hygiene. She has now about one-quarter of an inch downward movement of the jaw. The motion obtained in the jaw in this case is due to the action of the temporal muscle on the coronoid process, pulling the upper fragments upward (immediately the bone was sawed through), leaving a wedge-shaped opening between the fragments, the bone uniting in this position.

After union the jaw can move downward the distance that the temporal muscles pulled up the upper fragments. Later this motion will be increased if the size of the condyloid process diminishes which will prevent the probable interference of the styloid process of the temporal bone. In some cases, on account of the interference of the styloid process, its removal has been advised. Her personal appearance is much improved, and she is happier and in better spirits (Figs. 6, 7, 8, 9, 10 and 11).

A Contribution to the Method of Filling Teeth with Cast Gold Inlays.

By DR. ERNST SMREKER, Vienna, Austria.
Translated by DR. THEODORE BLUM, New York.

So as not to be misunderstood, I shall at the outset say with emphasis, that I consider gold inlays to be very valuable fillings with which one can achieve great success. But it is certainly an indisputable fact that at times, in dealing with compound cavities, even with very careful work, ill-fitting inlays result. Some such failures with saddle-shaped gold inlays, which were prepared with flat floors and rectangular walls, induced me to investigate as to whether these really are mathematically accurate reproductions of the wax inlays, as has been believed by many to be an established fact.

All the books on physics teach us that the coefficient of expansion of gold (heated from 0 degree to 100 degrees Celsius) is 0.0014; that is, gold expands with a temperature elevation of 100 degrees Celsius, by the indicated proportion of its length. Assuming that the pressure of our casting machines presses the melted gold at the moment of solidification exactly toward the walls of the hollow space, then the gold will, in cooling from a temperature of about 1000 degrees Celsius, shorten to ten times the coefficient of expansion in every direction. For an inlay 1 cm. in length the calculation shows a deficiency of 140 mikra., a little more than 1 mm., which is easily visible to the naked eye.

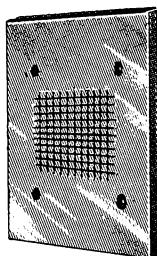


FIG. 1.

Taggart's words, "I give you an inlay that will not contract," certainly stand in contrast to the above-mentioned laws of physics; yet they could be true, if the investing material in hardening, or through heating, and under the influence of pressure in casting, would expand just as much as the gold contracts in cooling. This problem can only be solved by experiments.

On a brass plate I had a square cm. divided into square mm. (Fig. 1), took an impression of this in **Experiment to Test for Contraction.** wax, and invested it in one of the purchasable investing materials. After burning out the wax it was replaced with 22-karat gold, using the centrifugal apparatus, "Rotax." The division lines appeared sufficiently visible in relief on the gold. My expectation was to be able to prove under the microscope a shortening of the cm. by 0.14 mm. To my great surprise, the first experiment showed a much greater contraction of the gold, a contraction of more than 0.3 mm. By reason of this fact, every theory of a compensation for the con-

traction of the gold had to be abandoned. Moreover, the suspicion arose that the investing material contracts a good deal in heating. The evidence of this was easily furnished. I invested the wax disk with the reproduced division and heated the investment material in the same manner as for a casting. I did not, however, execute the process of casting, but freed the investing material of its metal ring, cut so much off that the mold was exposed, and subjected it to a measurement under the microscope. Three different investing materials, which were heated until red hot, showed a linear shortening of 0.1 mm. to 0.2 mm. for 1 cm.

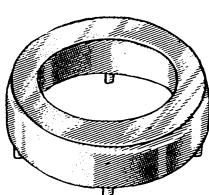


FIG. 2.

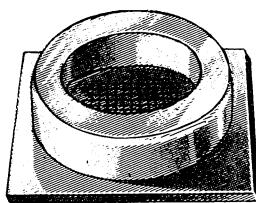


FIG. 3.

In examining before heating, only one material showed a little shortening, while for the two others, a variation could not be ascertained.

In this way I thought I had solved in a simple manner the riddle of the unexpected great contraction of the gold.

At this period of my work, I was advised of an excellent paper in the *ITEMS OF INTEREST*, May, 1909, written by Dr. Weston A. Price. I presume that everyone is familiar with this paper. In adopting different methods of experiments, we arrived generally at the same opinion. On a few points, however, my observations differed from his.

On my return from the Dental Section of the

Tests of Wax. XVI. Medical Congress in Buda-Pesth, to which I communicated my observations, I again resumed my

experimenting. I found an unexpectedly great source of error in the wax. Exact wax impressions with the above-mentioned divisions are difficult to make. For this reason I put a ring upon the brass plate (Figs. 2 and 3) and poured melted wax into it, which was compressed with a piston fitting into the ring. At first the measurement was still



accurate. Then the wax started to contract. The contraction may amount to 0.3 mm. for 1 cm. after one to two days (Solbrig wax). This error probably outweighs the contraction of the gold and the investing materials.

To avoid this, only one side of the previously prepared wax disk was heated until the wax became sufficiently plastic, and then it was pressed with the piston against the division marks on the brass plate. The contraction of the wax was then not noticeable under the microscope even after a few hours. In any event, in order to be absolutely sure, in making the experiment it is best to measure a few lines of the division immediately preceding the investing of the wax. *Thus, in a practical case, it is advisable to invest wax inlays as soon as they are made.*

A gold inlay made in this manner only shows a contraction of 0.1 mm. to 1 cm. Accepting the coefficient of expansion of gold, as found by Price to be 0.002, and admitting that under pressure this coefficient is reduced to 0.0013, we must, therefore, find compensation for the contraction of the gold. Being certain that the investing materials which I used contract in heating, as shown by myself, and even more conclusively by Dr. Price, we must first of all consider a yielding of the form under the influence of the pressure of the casting machine. Everybody who has taken the trouble to examine the investing material after heating, as to its poor firmness, must admit that this is possible.

Another possibility would be that the coefficient of expansion of gold given as 0.002 is too high.

Dr. M. L. Ward reminds us in the *Dental Cosmos* that the coefficient of expansion is variable; that is, dependent upon mass and form. A gold rod expands more than a disk or sphere. According to Ward's calculation, an inlay 6 mm. in size would only contract 20 mikra. Many experiments are still necessary to settle this question and to reach a final conclusion.

Resorting to the above method, it is easy to examine the result arrived at if the gold inlays are made after a model. For instance, one can take an impression of the division with dental lac and make a model from this out of copper amalgam. A microscopical examination did not disclose a shortening of the divisions. This finally establishes the proof that the indirect method is, theoretically, not objectionable. But in practice minor defects are often found, as is illustrated in the following experiment:

**Test of
Impression Methods.**

I took an impression with dental lac of a simple, properly prepared cavity in a brass plate and made a mold of copper amalgam. From this again an impression and mold until I had five successive molds

of the original cavity in the brass plate. I made a gold inlay for the original, the first and the last model, respectively. In placing the inlay made from the first duplicate into the original cavity, and comparing it with the fit of the original inlay, a difference is scarcely noticeable. But in placing the fifth inlay into the said original cavity, one can observe a tendency of diminution by the indirect method. However, as we only have to consider one-fifth of the very small error, we can see that with regard to the advantage of comfort to both the patient and the dentist, the indirect method is practically as good as the direct, as errors may result even when making the wax inlay in the cavity of the tooth.

Obtaining Accurate Margins. As we desire to minimize the cement at the margins to the smallest possible extent, our main effort in making gold inlays is confined to having the inlays fit as accurately as possible at the margins. We gain this result by beveling the cavity margins. In this way the gold inlay acquires a thin edge which can be so accurately burnished to the margin as to cause a disappearance of the cement. At places where no such edge, but only a simple adaptation is present, we are advised to stretch the gold with burnishers and to draw it over the margins. But there are also places at which, on account of inaccessibility, burnishing is impossible.

To get rid of at least the mechanical wear and tear which is one of the two causes necessitating the disappearance of the cement, a very precise fitting is of the utmost importance. We can scarcely assume that the chemical solution of the cement will entirely cease. In putting gold inlays, cemented in place with Harvard cement, into an aqueous solution of methyl violet, one finds the cement totally penetrated by the solution in less than fourteen days, even if the margins were well burnished. If such a solution can penetrate the porous structure of the thinly mixed cement, certainly acid can. Therefore, even the burnishing does not provide the absolute protection attributed to it.

Gold Inlays Compared with Other Filling. Notwithstanding this fact, I believe that we will achieve better results with gold inlays than with porcelain fillings. But no one can say at the present time whether they will be as good as a gold filling, well-made with non-cohesive gold, or tin-gold margin. To be able to determine this, however, a lapse of many years is necessary. The cervical margin is the danger point for recurrent caries. It remains comparatively intact, however, with porcelain fillings. The statement that caries never occur there, however, is not true. On ac-

count of the better-fitting margins, one may expect that with gold inlays, caries in that region will appear less frequently than with porcelain.

**Tin and Gold
Margins for Gold
Inlays.**

To be absolutely certain, I use approximately at the neck of the tooth a combination filling, which for the past eighteen years I have known to be a very good, perhaps the best, protection against recurrent caries—tin-gold with cement. I shall attempt

to describe this special method in a few words. We usually have to deal with large approximo-occlusal cavities, with a broad, flat, cervical margin and pretty deep lateral walls. The possibility of adjusting the matrix properly is a necessary requisite for good and convenient work. One-third to one-half of a leaf of tin and gold is rolled together and cut into pieces, the length of which exceeds the bucco-lingual diameter of the cavity. The cavity is moistened with cement of cream-like consistency. Then a tin-gold piece is dipped into the liquid cement and flattened out lengthwise upon the cervical floor so that the ends lie close to the lateral walls. For this, heavily serrated tin-gold pluggers, or Sach's gold pluggers, are of good service. Then the tin-gold is covered with a piece of spunk and with a broad amalgam instrument (G. V. Black), heavy pressure is exerted so powerfully as to condense the tin-gold and to squeeze out as much of the cement as is possible.

The spunk allows the exertion of equal pressure, protects the cavity margins and absorbs the surplus cement. In this way, piece after piece is placed parallel to the cervical wall, until one-third or one-half of the cavity is filled, and it is nearly on a level with the morsal surface. After a few minutes devoted to the setting of the cement and for the removal of the excess of cement out of the remaining part of the cavity, this is covered with vaseline and the wax inlay made, or the plastic impression taken.

Contrary to the customary method of preparing tin-gold fillings, my method has the advantage that the pieces dipped into cement adhere to the walls of the cavity and to each other. Through this the support is increased and the filling made water-proof.

What advantage is offered by the tin-gold margin to the gold inlay? In my opinion, the appearance of secondary caries at the cervix of the tooth is impossible. By this I mean the caries which starts between the tooth and the ill-fitting filling.

After the preparation of the tin-gold margin, the making of the wax inlay, or the plastic impression, is very much simplified.

In making an approximal gold inlay, great sacrifice of healthy tooth substance is often demanded. The tin-gold margin, however, limits the necessity somewhat, so that the cervical part of the cavity can even be bay-like. The dissolving of the cement between gold inlay and tin-

gold is immaterial. Some one may reply that the tin-gold is attached to the cervical wall with cement, and that here also the cement may dissolve, causing leakage. As far as the fluids of the mouth have the power to penetrate it, this is quite possible. On this point one can procure an approximate conception through preparations which are placed in color (staining) solutions. By these it can be shown that the cemented tin-gold hinders the access of the aqueous solution better than amalgam fillings or gold inlays. Time which never has shown me secondary caries in these



FIG. 4.

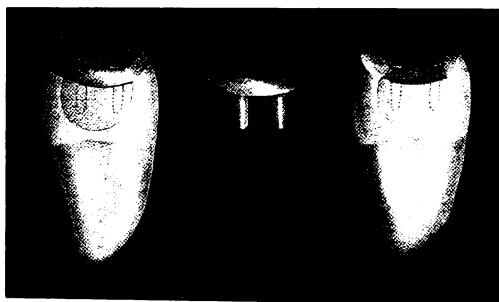


FIG. 5.

cases, gives me the best answer. I know that in America the tin-gold filling is skeptically looked upon. It should be given a trial with the tin-gold well condensed, and finally worked against the wall with flat burnishers. Success must then result. I, myself, use only S. S. White's tin-foil No. 4.

I also often protect approximal porcelain fillings in front teeth as well as in bicuspids and molars with tin and gold by building up with it the subgingival part of the cavity. In the case of a first upper molar without an adjacent tooth anteriorly, I have even combined tin-gold, porcelain and gold inlay, and so have gained protection against secondary caries, cosmetic appearance and solidity for resisting the stress of mastication (Fig. 4).

**Defense of
Gold Fillings and
Gold Crowns.**

Porcelain fillings and gold inlays have unjustly overshadowed gold fillings and gold crowns. We certainly would not make any more gold fillings or gold crowns if we were to take seriously the horrible description given of them by some authors. The many failures with gold fillings may be explained through the fact that they were not made with the necessary expenditure of time and care, and, in order to spare the patient pain, were not sufficiently condensed. The

progress in the technique of local anesthesia, however, will also here create beneficial change.

From lack of care, and similar evils, the crown suffers. After removing an imperfect crown, how often may one detect totally unprepared roots? Ought one to be astonished to find the gum margin irritated, and after the cement is washed away, putrefaction and fermentation prevailing?

For the exact preparation of a crown I often spend from one to two hours, and take especial care not to push the band at any place so deep as to have it project too far below the free gum margin. The band is gradually made smaller, until it expands only under application of great force into its necessary size.

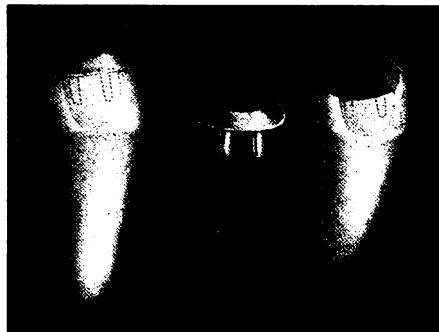


FIG. 6.

Under these circumstances a crown which does not excite the slightest irritation of the gum can be made. The greatest care should be employed when two adjoining crowns must be prepared. From the adjoining cervical region, tooth structure must be removed in order to make room for the gold, subgingivally, and through this avoid pinching the gum. But it is safe to say that in the future it will be possible to avoid the making of many a crown through the use of gold inlays. I have often made crowns for pulpless bicuspids when I feared the breaking of a cusp, which I now believe may be protected from this danger by making a new masticating surface out of gold 1 mm. in thickness (Fig. 5).

In case if lower cusps, one can just grind off the masticating surface. If the cusps are high, one must, to preserve the cosmetic appearance, prepare the base at an obtuse angle, the point of which faces the apex, so that the new masticating surfaces remains low (Fig. 6).

Support is gained by a pin extending into one of the larger root canals, or by two little pins which are inserted into the tooth substance, or into the filling.

Besides the usual inlay technique with pin support, the following method may also be adopted: Of the ground surface an impression is taken, a thin piece of gold swedged, the pins fitted and soldered. On top of the gold a little wax is placed, the patient made to close his mouth, the masticating surface modeled and the wax replaced by casting 22-karat gold. The two pins may stand buccally and lingually, as in Figs. 5 and 6, or mesially and distally. In the latter case they may, penetrating the cement, greatly contribute to the support of the filling.

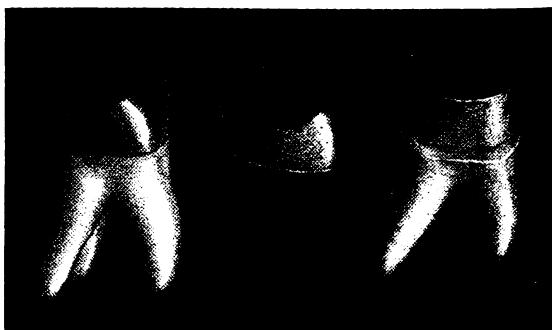


FIG. 7.

Instead of the usual gold-shell crown, Dr. Wm. Wassall recommends a flat-ending crown, which is obtained by grinding the crown and leaving a shoulder of 1 mm. at the gum (Fig. 7). The cast crowns do not, if they are invested in the usual materials, fit the root of the tooth, on account of the contraction. But it is not difficult to remove from the inside so much of the gold with the fissure-burrs that the crown fits most accurately.

Although my experiments, after the excellent work of W. A. Price, no longer show surprising results, I am of the opinion that they are of some value. They can be performed by simple means and allow a comparative examination of the different methods. All the many casting machines, and their appurtenances, the investing and the impression materials, can easily be tested as to their value, and the best thus selected from the others. In this way we clear the road to progress and we ourselves reap the greatest advantage.





The Origin, History and Progress of Some of the Dental Clinics in New York City.

By BEATRICE C. FAIRCHILD, D.D.S., New York.

That something is being done to save the teeth of some of the children of the poor is not known by many members of the dental profession, and many more of the laity. I wish it might be said that the time has come, and a means been provided, whereby care may be given to the teeth of all the children of the poor. But this time has not yet arrived. Nevertheless, the dental clinics located in different parts of New York City are doing more efficient and better organized work than ever before in their entire history. If this work continues (and it is fair to believe it has come not only to stay, but to grow) the children who are so fortunate as to be helped, should have better teeth, better digestion and better health than their ancestors had. What child, whose teeth are in a broken-down condition, will properly masticate his food? What child can have good health and a harmoniously working set of organs, whose mouth is filth-laden, whose food is being incorporated with the micro-organisms which infest the oral cavity, and hence are carried throughout the alimentary canal?

Most of the work now being carried on in the clinics is done by a few public-spirited dentists, who recognize that to the poor, ethical, conservative dentistry is a luxury; who realize that the poor need to be educated in the care and preservation of their teeth, and that their children make apt and satisfactory pupils and are duly grateful for the efforts in their behalf in this direction.

In connection herewith, it can be truly said that the fact that more of the better dentists do not lend their efforts and encouragement to this philanthropic work is a lamentable fact. It is one of the few directions in which charity can be dispensed without pauperizing either the giver or the recipient.

St. Bartholomew's Clinic. In 1891, through the efforts of Dr. Sinclair Tousey, Bishop Greer gave the use of a small room in St. Bartholomew's Parish House, one hour a day, for the establishment of a clinic for general surgery.

At other times this room was used for the Penny Provident Fund. This clinic, which was for major surgical operations and also for the minor surgical operations of tooth extraction, soon grew so large that a small building was provided for it and thirty-five thousand patients were treated in a year. During this period nothing was done in the dental line

save extractions, all operative work being referred to the infirmary of the New York College of Dentistry.

In 1900 there was given by a lady, whose name is withheld, land and building, and, in addition, a regular annual donation of ten thousand dollars for the maintenance, in this building, of a dental clinic. Also, in connection with this sum of money, there is donated for the same purpose one collection annually from St. Bartholomew's Church. Now, for the first time, there was fitted up a regular dental room, with modern equipments. Dr. J. Morgan Howe was appointed chief of the dental staff, and among his associates were Drs. H. W. Gillett, Leo Green, T. B. Palmer, H. L. Wheeler, Arthur Haas, A. H. Merritt and others. In consequence, all cases were treated within the one building. Dr. Howe resigned several years ago, and the splendid work which he started is being continued by Dr. Cady and his associates. The work averages about three hundred and eighty-eight operations a month.

This clinic differs in some respects from those established subsequently, in that the patients pay ten cents each visit and the regular attending dentist receives a small compensation.

The next clinic in order is that of the Children's Aid Society, in the school building at 552 West 53d Street. Through the efforts of Dr. Herbert L.

Wheeler, Charles Loring Brace, secretary of the Children's Aid Society, became interested in the work and decided to introduce it into the 53d Street School as an experiment. In October, 1907, the equipment was purchased, and in February work was started. This clinic is under the personal direction of Dr. A. H. Merritt and its work is worthy of the admiration and assistance of those who would know something more of institutional dentistry.

The following quotation from the annual report of the Children's Aid Society will show exactly the kind of work done:

"An effort has been made in each case to put the mouth of the patient in complete order; that is, such teeth as could not be saved were extracted, decayed ones filled, the teeth cleaned, the mouth transformed from uncleanliness and disease, to health and normality, and mouth hygiene encouraged. It is believed that to fill one or two aching teeth in a mouth in which there are several others requiring attention is of little permanent value to the patient. To do everything that is required to put the teeth in perfect order and the mouth in a state of health, and to then encourage the patient to keep them so by careful attention to cleanliness, thereby preventing in large measure further trouble, has been the principle upon which the work has been



ITEMS OF INTEREST

carried on. If in anything the ounce of prevention is worth more than the proverbial pound of cure, it is in the treatment of these conditions."

It must be remembered that, although this child is one from the tenements, he need not always remain there. One can not tell what position in life these children may be called upon to fill. In proof of this, quoting again from the annual report of the Children's Aid Society, it will be shown that many of their children have grown into splendid men and women and the following noteworthy careers may be mentioned:

One Governor of a State.	Seven Members of the State Legislature.
One Governor of a Territory.	Three County Commissioners.
Two Members of Congress.	One Judge.
Two Sheriffs.	Twenty-seven Bankers.
Two District Attorneys.	Twenty-three Merchants.
One City Attorney.	Two School Superintendents.
Four hundred and sixty-five Business Clerks.	Three Civil Engineers.
Thirty-four Lawyers.	Twenty-four Clergymen.
Seventeen Physicians.	Two College Professors.
Nine Postmasters.	One County Treasurer.
Six Railroad Officials.	Two Artists.
Thirty-six Railroad men.	Two County Recorders.
Ten Real Estate Agents.	Three County Auditors.
Sixteen Journalists.	One Clerk of the Senate.
Eighty-two Teachers.	Over three thousand entered the
Seven School Principals.	Army and Navy.

From careful analysis of the records of all the children, it is estimated that 87 per cent. are doing well, 8 per cent. were returned to New York, 2 per cent. died, $\frac{1}{4}$ per cent. committed petty crimes and were arrested, and $2\frac{3}{4}$ per cent. left their homes and disappeared.

Beside putting the teeth in good order, the child is instructed how to keep them so by a knowledge of the use of the tooth-brush. Each child is provided with a tooth-brush for the small sum of two cents, and if he can not afford this, the brush is given to him. A sample bottle of dentifrice is also given with the brush.

The good results reached in this most fortunate school are due to the fact that dental attention is compulsory. Each child passes through the hands of the dental clinic once every year, from the time he enters the school at six years of age, until he leaves it at sixteen. Hence, you

will see that the foolish fear of the child or the ignorance of the parent, plays no part in the work. A child whose teeth are neglected between the ages of six and sixteen, as a rule, suffers a most serious handicap.

**Industrial School
Clinic.**

The authorities of the Children's Aid Society were so pleased and convinced with the progress and good work which was being done for the children of

the 53d Street School, that Mr. Charles Loring Brace invited Dr. Merritt's assistance in inaugurating a dental clinic in connection with the Five Points Industrial School on Worth Street. This was done in the fall of 1909 and, although the work is still in its infancy, the results thus far have been most gratifying, so much so, that the Children's Aid Society has volunteered to equip and maintain dental clinics in each of their twenty or more industrial schools, ministering, as they do, to over twelve thousand children.

In each of these clinics connected with the Children's Aid Society, the system of arranging the staffs is as follows:

First, Attending Staff—Made up of those who give one afternoon each week for two years.

Second, Visiting Staff—Composed of members in full practice who give one afternoon each month.

Third, Consulting Staff—Enlisting the leaders of the profession who are called upon in consultation.

**Sullivan Street
School Clinic.** Also, under the auspices of the Children's Aid Society, there is a dental clinic in the Sullivan Street School. Quoting from the annual report:

"By the close of the school year 1907-1908, our School Dental Clinic at 53d Street of the Society, has been such a success in service which it rendered and had demonstrated so strikingly the need of such service for school children that, in the fall of 1908, Dr. John Brannan, of Bellevue Hospital, established under the direction and supervision of the hospital, a dental clinic at our Sullivan Street School in the Italian district, at 219 Sullivan Street."

As an outgrowth of the dental clinics of the Children's Aid Society, Dr. John Winters Brannan, president of the Board of Directors of Bellevue and allied hospitals, held a conference with the organizers of the dental clinics of the Children's Aid Society and steps were taken to inaugurate a dental department in Bellevue Hospital for the treatment, largely, of the children of the wards and the convalescents. Work was started there in October, 1909, with Dr. H. L. Wheeler as chief of the dental department.



**Dental Clinics
in New York.**

With the exception of the clinics at Bellevue and St. Bartholomew's, the above-named have been purely charitable organizations concerned chiefly in the treatment of children. At the following clinics, located in different parts of New York City, adults, as well as children, may receive treatment for the nominal fees stated:

Dental Clinics—Extracting Teeth Only.

(1) With services free only:

Harlem Dispensary, 108 East 120th Street.

(2) With 10 cents for registration each time:

German Hospital, 77th Street and Park Avenue.

New York Dispensary, 180 Grand Street.

Blachonian, 183 Ludlow Street.

Good Samaritan, Essex and Broome Streets.

Poliklinik, 177 Second Avenue.

(3) With 10 cents for registration and free service to worthy cases:

Eclectic Medical College, East 14th Street.

Northern Dispensary, Christopher and Waverly.

Northwestern, 36th Street between 9th and 10th.

Dental Clinics—Filling Teeth and Terms.

Vanderbilt, 10th Avenue and 60th Street.

10 cents for extraction each time.

25 cents for extraction with gas.

25 cents for filling, silver and cement.

50 cents to \$1.00 for gold.

50 cents to \$1.50 for crown.

\$1.50 to \$3.00 for plates.

Northeastern, 222 East 59th Street.

10 cents each day for registration.

St. Bartholomew's, 217 East 42d Street.

10 cents for registration each time.

New York Throat and Lung Hospital, 229 East 57th Street.

25 cents for card good for three months. Hours, 2 P. M.

**Children in
Public Schools.**

We have not yet considered the condition of the teeth of the children of our public schools. So poor are the teeth of these children that in the spring of 1909 out of five hundred applicants at the Board of Health for working papers there were found to be but thirteen cases where the teeth were in such condition as not to require dental attention. In the average mouth of the patient of fourteen years of age

there will be found from six to fourteen carious teeth, two or more of them non-vital; two or three molars doomed to extraction, and spongy and bleeding gums in many cases.

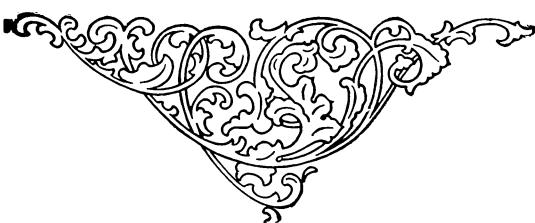
The free Dental Clinic, the last one established in New York City, is somewhat different from the others in its origin.

In recent years, physicians and nurses have been installed in the public schools to find those children suffering with adenoids, tonsils, incipient tuberculosis, scabies, impetigo, defective vision and other maladies.

Where a child is found suffering from any of these diseases, he is advised to consult a physician. Where poverty prevents private treatment, the child is referred to a hospital or dispensary. But not so with defective teeth. Where these cases are found, the child is advised to consult a dentist, but if too poor to do so, he must suffer the destruction and loss of his teeth, to say nothing of the wear and tear sustained both mentally and physically, while this destructive process is going on. And all this because right here in New York, the leading city of the world, we have not a sufficient number of free dental clinics to meet the need of the worthy poor school child. Poor or rich, the boy of to-day is the man of to-morrow. The mental, moral and physical condition of the coming generation depends upon the soundness in body and mind of the boy of to-day.

Although enormous sums of the city's money are being expended yearly to put these children in proper condition, cases can not be terminated while the organs of mastication are in their present wretched state.

So appalling is the need for this service that Miss M. Clark, school nurse in the Division of Child Hygiene of the Health Department, and assigned to Public Schools Nos. 39 and 159, enlisted the aid of her own personal friends, collected enough money, and has inaugurated at 449 East 121st Street the first free dental clinic for public school children in the City of New York. Up to the present time the work is confined to Public Schools Nos. 39, 159 and 78.





Rip Awake.

By M. N. FEDERSPIEL, D.D.S., Milwaukee, Wis.

The article written by Dr. Eugene S. Talbot, and published in the March issue of the *Dental Cosmos*, in which the doctor severely criticises the teachers in American dental colleges, and compares them to the sleep of Rip Van Winkle, may have been penned while the doctor was laboring under a delusion or at some equally inauspicious moment. The writer is confident that if Dr. Talbot would familiarize himself with the advancement in orthodontia, he would soon learn that the correction of malocclusion of the teeth by the modern skilled orthodontist is based upon a correct knowledge of embryology, histology, pathology, anatomy, physics, chemistry, etc.

Orthodontia in the past was practiced in an empirical way, which might be compared to the treatment of many diseases with which the physician is unable to cope; hence, the treatment is speculative. In the last ten years, however, orthodontia has made such rapid strides that it is to-day recognized as a field in which men do things and get results. Orthodontia is one of the specialties of medicine which is recognized as an exact science. Dr. Talbot, nevertheless, in his article, says "the damnable practice of indiscriminately spreading the dental arch without extraction, can not be too severely dealt with. Operators who do this have no knowledge of the human body or that patients possess nervous systems. Suggestions fall on desert soil, etc."



ORTHODONTIA

Then the doctor goes on to tell of a fifteen-year-old girl who was brought to him in consultation by her parents. She was on the verge of nervous prostration, could not sleep nor attend school, and her appetite was faulty. She had been under the care of a first-class "mechanic specialist" for some time in order to have the superior dental arch spread to allow the cuspids to erupt. About one-half of the space required for their eruption was present when the appliance was adjusted. Nothing had been accomplished in the six-months' treatment except that the incisors were brought anterior to their normal position, thereby causing a marked deformity of the teeth and lips. The money decided upon for doing this operation was paid in advance. The operator finding that he could not accomplish what he had promised, now demanded one-half as much more money before he would continue the work. This was refused.

Dr. Talbot then continued; "When the patient came to me I found that even the appliances were a source of annoyance. I removed them and stated that it would not be necessary to replace them. I then dismissed the patient with the understanding that she was not to go to school, but to walk in the fresh air, expand the chest by deep breathing, eat plenty of nourishing food, keep her bowels open, and return to my office within a week. On her next visit I informed her that I would extract the first bicuspids and that was probably all that would have to be done, the articulation being normal. Nine months after the extraction of the teeth the cuspids had erupted and the incisors had returned to their normal position."

Unfortunately, in replying to the above-quoted statements of Dr. Talbot, the writer is at a loss to know, from the doctor's presentation of the case, from what form of malocclusion the patient suffered. No competent orthodontist, and there are many such recognized by the medical and dental profession, would attempt to indiscriminately spread the superior dental arch without being confident that by so doing he would facilitate the bringing of each and every tooth into proper occlusal relation with its antagonist.

Dr. Talbot further tells us what he did to the upper arch; that is, he extracted the two upper first bicuspids to make room for the cuspids. He forgets or fails to tell us what the precise relation of the lower teeth to the upper was. He speaks of the articulation as normal, which can be true of patients having malocclusion. Teeth may be in any form of malocclusion and the patient still be able to articulate.

The doctor then generalizes by telling us of his record of twenty-seven young patients who have gone through similar experiences to that described, under the care of "these teachers of mechanics." "All," he

said, "have had similar breakdowns; some have been injured to such an extent that it will require years to recover health."

I am confident that if Dr. Talbot's twenty-seven young patients had been in the hands of competent orthodontists, not "teachers of mechanics," as the doctor terms them, that there would have been no tendency for nervous breakdowns, loss of appetite, etc. Those who wish to understand, and desire to be thoroughly familiar with the science of orthodontia, must recognize that the correction of malocclusion is not pathological, but is purely physiological.



FIG. 1.

FIG. 2.

The writer has a record of over eighty-five patients, in all walks of life, of ages ranging from five to thirty years, who have suffered from various forms of malocclusion, and have had their teeth corrected and placed into normal occlusion (not articulation). Not one of the patients ever complained of suffering then or has suffered since from any nervous manifestations. They are all satisfied to have their teeth in normal occlusion.

Somewhat farther on in his charges against the orthodontist, Dr. Talbot says, "Why not operate in the interest and welfare of the patient, extract the first bicuspids and save months and perhaps years of suffering? Plowing through dense bone by pressure and absorption is a pernicious habit, and would not be tolerated in other branches of surgery." To this one might reply that the orthodontist brings the teeth by slow changes into normal relation, thus frequently relieving disorders, nervous and otherwise, which are due to a faulty relation of the teeth, and alle-

viating suffering and misery, sometimes of a physical, sometimes of a mental character.

Again the doctor says, in regard to the striving for artistic effects in dental operations, "The unhygienic condition of the mouth in its artistic environment contrasts well with the jaws and teeth. Rooseveltian style in jaws and teeth of a delicate individual possessing small features, and



FIG. 3.

FIG. 4.

whom the Almighty never intended to resemble a Halloween jack-o'-lantern, is due to the expansion of the dental arch without extraction. There are many of these neurasthenics and degenerates walking the streets, who would have looked better in their natural environment. I fear dental teachers are asleep in regard to art as well."

In reply to Dr. Talbot's Halloween jack-o'-lantern phenomenon, I refer him to Figs. 1, 2, 3, 4, 5 and 6, which I feel convinced will assure him that Rip is wide awake, especially so in the teaching of modern orthodontia.

Many a poor patient suffering from a distorted mouth, contracted upper arches, crowded and bunched teeth, in appearance a degenerate,

the joke of society, has been made to look like a regenerate, and normal man or woman, when under the care of a competent orthodontist. Orthodontia has come to stay. It has been forged from empirical methods into a broad and exact science. While it is true that some men are sleeping the sleep of Rip Van Winkle; that some men attempt to practice orthodontia, who know little about the subject, and think that the correction of malocclusion of the teeth is pathologic; that some men believe it possible to expand the upper arch merely for the purpose of correcting a deflected septum, regardless of occlusion; that some men who have been unable to correct mouth deformities on account of lack of skill and abil-



FIG. 5.

FIG. 6.

ity believe such patients to be degenerates; that some men attempt to treat pyorrhea by salves and ointments; nevertheless, we know that such men are to be found in all the walks of life, and it is no criticism on the advancement of our profession or the teaching in our dental colleges. That remarkable progress has been made in our profession in the last ten years is known too well to allow precipitate criticism to interfere with the tide of advancement.

In no statement has Dr. Talbot departed from good judgment so far, as in the following: "I hope and trust that so radical a departure as this," he says, "namely the study of casts, instead of the tissues themselves, will be copied in medical journals, and thus upset the present well-

established methods of treatment of disease. Think of studying plaster casts in the treatment of whooping cough, typhoid fever, pneumonia, measles, gumboils, and piles."

This in regard to methods in orthodontia is an evidence of flimsy and faulty argument. I wish it were possible for us to take a plaster impression of the pathological changes that occur in whooping cough, typhoid, etc. But we do the next best thing. We make microscopical sections and in that way study disease. We use the X-ray to find out what bones are broken, or to recognize the formation of stones in the kidneys and bladder. We use the thermometer so that we may know the temperature; we examine the urine to distinguish any abnormalities; the secretions of the stomach are analyzed to study disorders of the organ. Photographs are taken of diseases of the skin; namely, psoriasis, lupus vulgaris, ichthyosis, and the various forms of alopecia. And for similar reasons, for deformities of the mouth and face, we obtain photographs and casts. Not long ago the writer, for the purpose of study, had the pleasure of taking a photograph as well as a plaster cast of a fatty tumor of the neck.

In surgical operations we use various forms of hemostatic forceps, saws, drills, chisels, retractors, curettes, ligatures, etc. For like beneficial results, in the mouth we also use instruments by which we are able to carry on the splendid work of good dentistry.

I trust that Dr. Talbot will come to realize that dentistry, especially the teaching of dentistry, is wide awake in a large number of our dental colleges.

Hereditary Causes of the Misplacement of Teeth in the Dental Arch.

By DR. W. STIRLING HEWITT, Philadelphia, Pa.

Read before the Southern Dental Society of the State of New Jersey, Dec. 15, 1909.

The dental profession is very much interested in the art of correcting irregular and incomplete dentures. In studing this art, we have, I think, been giving too much attention to ways and means, and our societies and magazines are spending their time discussing different systems of mechanical appliances and neglecting, to a large extent, the basic causes of these conditions.

We hear much ill-considered talk about "what Nature intends," as

though the orthodontist, as he waves a skull before us with the teeth in proper articulation, had been blessed with some inside information from that "figurative but convenient person—Nature," as to what she intended to do with the poor little unfortunate whose teeth are so jumbled that they look as though they had been thrown in. Now, the whole object of this paper is to consider in all its lights, and to frankly discuss all the multitude of primary and secondary conditions that have made this present generation so subject to irregularities of teeth.

In discussing this matter I will not consider any conditions that have been acquired, such as adenoids, mouth-breathing, or any specific diseases, but shall confine myself to heredity alone. I wish to show that these conditions are not due to accidental causes, but are due to laws fixed and immutable, that have been made by the Supreme Being, for the evolution and growth of the human race towards a greater perfection.

First, we will consider the fact that all races are constantly changing to meet new conditions. Nature is constantly experimenting with each individual of a race in order that an improvement in the race may be made.

From this we find that the individuals that are specially adapted to surrounding conditions, survive and leave their characteristics to their offspring, and those who are not well adapted die and their type is lost. Now, Nature is always experimenting with all organs of the body, and not least the teeth and surrounding parts. We often hear it stated that there is no such thing as a small arch and large teeth, and *vice versa*—but why not? Are we made symmetrically all over? Can we not inherit a large nose from one parent and small eyes or ears from the other? Suppose now that the suggestion of these authorities be accepted, that overcrowding in every case is due to an under developed arch, what would you say of the comparatively rare case of small teeth widely spaced in a large arch? Did the arch grow too much, or did the teeth forget to have their enamel sacks made large enough? Or, was it an effort of Nature to make a new type? Observation will lead you to remark that every person in some particular, is a new type, and where Nature is leading the race remains to be seen. Consider the question of facial angle, which becomes more obtuse as the race advances intellectually.

The Facial Angle.

Our revered and somewhat stupid ancestor, the anthropoid ape, had rather an acute facial angle, and, mark this, had a fourth molar tooth. Even to-day we occasionally see this molar and call it a supernumerary tooth. Our nearer ancestor, the cave-man, has been found with and sometimes without a fourth molar, but with a facial angle

more obtuse. Several of the lower orders of humanity to-day have almost invariably a fourth molar. To accomplish the loss of the fourth molar took millions of years.

Now we are advancing very rapidly intellectually, in fact, in the last five thousand years we have made more progress than in the previous epoch. What is the result of this sudden acceleration in the intellectual advance of the race?

First, the facial angle must be made more obtuse, till it is almost a right angle. To make this change, one of two things must happen, either the brain must be pushed forward or the dental arch must be reduced. The brain does grow forward, but it can not go far, because it would destroy the mechanical balance of the head. This leaves us with the problem of the reduction of the dental arch. The progress of our ancestors was so gradual that the changes in the dental arch could be made slowly, and a molar was simply dropped in a few million years to arrange for a new facial angle.

We are giving Nature a hard task when we expect her to adjust our facial angle in a few thousand years. Nature, in doing this, avails herself of the laws of heredity.

There is in all individuals of a species two tendencies: one is toward the normal, the other departs from it. The tendencies toward the normal fix the race or species. In the tendencies away from the normal there are a multitude of varieties which are instrumental in altering the race to meet new conditions.

To come back to teeth again, I may illustrate this point by referring to that which is considered a normal articulation and a normal configuration of the face. The variations from this may be in two general directions: first, and most common, where there seems to be too many teeth; and, second, where the teeth are widely spaced. The second great cause of irregularities is in the mixture of races which is occurring all over the world, and especially in this country.

**The Survival of
the Fittest.**

It is a well-known fact among breeders of animals that if the type is kept intact by inbreeding, it will become more fixed and less liable to erratic alterations. In early days when there was little or no travel, people remained in their own immediate neighborhood, or migrated with their tribe, and the type remained more or less fixed, but to-day in all civilized lands we have the Latin and German with wide dental arches mating with the more Gothic arched Saxons and Scandinavians. It is making a new race, and in the end a fine race, but the immediate results are rather chaotic, and we dentists are observing the greatest epidemic of irregular dentures the world has ever seen.

The great sciences of medicine and dentistry are, strange as it may seem, one of the greatest causes of these conditions. The laws of the survival of the fittest are being violated by keeping alive people who, in the natural course of events, would die childless and the race would not be weakened by the infusion of hereditary weakness. We all have under observation persons whose teeth are so poor that in past times they never would have survived the coarse food and rough living. To-day they have received from infancy medical and dental assistance, orthodontia, prophylaxis, fillings, bridges, etc., and have lived to pass on to their children constitutions and teeth which also need our best efforts and constant care.

The influence of natural selection upon the development of the race has been altered from the same cause. People are made artificially attractive to each other by the lifelong care they have received. Can you imagine how repulsive many people would be if never in their lives had they received any dental care? Thus, persons whose dental organs are poor and irregular by nature are attracted to each other, and their offspring inherit such concealed defects as they may have had originally.

Do not misunderstand me. I do not advocate any Spartan method of destroying the unfit, for in this age it is the brain and not so much the body that must receive our attention, and all our ministrations must be made with the idea that the body is merely a tool and servant of the brain, and must be kept in order only that the brain be served.

Without question, the tendency of the human race is towards brain development. This great point has been overlooked by biologists in their studies of ethnology and comparative anatomy. *Not* that the body is deteriorating, for our athletic records and measurements of medieval armor show a decided advance in physical development. The greatest advance has been, however, in mentality, and incidentally with that mental has come a more perfect body, or better adapted tool for the brain. The greatest athletic feats have been accomplished by collegians or men of brains. So the reduction in size of the dental arch does not imply any decadence in the race, but rather an advance.

Now, gentlemen, considering the laws of heredity in the formation of a new type, the advance of mentality and the alteration of the facial angle, the mixture of races, the violation of the laws of the survival of the fittest and the laws of natural selection, can anyone positively say what Nature intends in any given case?

Just think over your practice in the last few weeks and see how many persons you have found whose occlusion is absolutely perfect. Of course the people we see most are those who need dental attention, but taking that into consideration, I think we will find on a guess that 90%

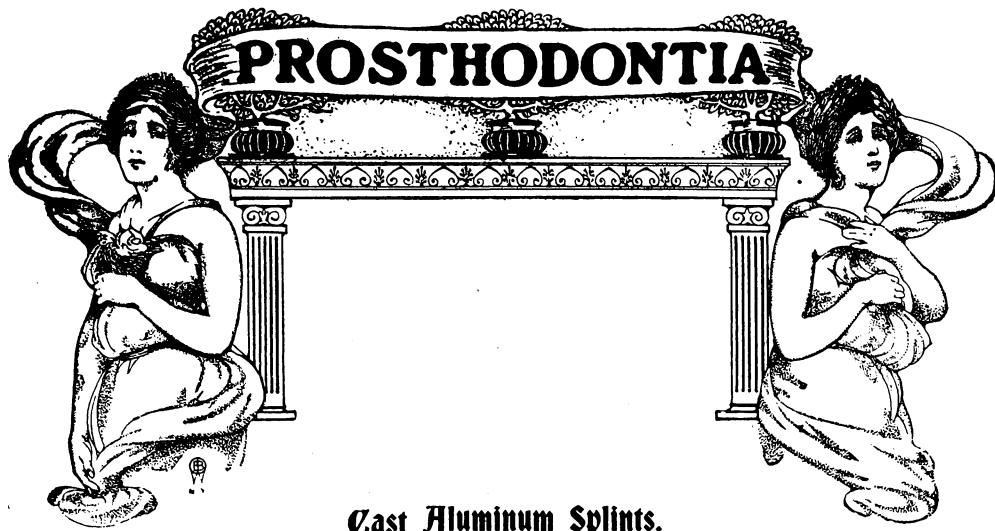
of patients exhibit symptoms of overcrowded arches and faulty occlusion. Examine the skulls of the Catacombs of Egypt, Rome and Mexico, and you will find no parallel to our modern conditions.

From this brief sketch of the basic principles **Treatment.** we will now consider how these general conditions affect us in our work. The

things to be considered in a case of orthodontia are innumerable. First, of course, must be considered such things as adenoids, mouth-breathing, and other acquired faults. Then the mentality of the child is compared with the parents, whether there has been any advance or otherwise that would indicate a change in the facial angle. Then the size of the arch and teeth as compared with the parents. Then the nationality of the parents and the ancestors, and possibility of national characteristics becoming mixed. Then the characteristic irregularities in the mouths of parents that might be transmitted.

Now, bearing in mind that the body is but the servant of the brain, consider whether the child is strong enough to endure the application of extensive apparatus, for better is it that a few teeth be extracted and the teeth straightened after a fashion than cause a wrecked and stunted nervous system. We are tooth-savers, and I trust that no man will extract a tooth through laziness or thought of profit; but in our anxiety to save teeth, let us not become tooth carpenters and think only of orthodontia in terms of mechanical appliances. The man who tries to stop Nature from doing that which she starts out to do, will have his troubles. Do not try to expand an arch until you find out whether the expansion of that arch is indicated. Do not use somebody's patent ready-to-wear, guaranteed to cure the most obstinate case, regulating appliance, until you find out whether Nature will not thank you for judiciously extracting a few teeth. This, gentlemen, is worthy of serious thought, for it appears that we have our place in the making of a great race; let us see that we help and not hinder this great movement.





Cast Aluminum Splints.

By J. H. BEESON, D.D.S., Crawfordsville, Indiana.

To those who are interested in enlarging our sphere of usefulness, elevating our professional rating and adding to the comfort and pleasure of unfortunate humanity, I trust this article may find a welcome.

The modern speedy methods of locomotion; the ever-increasing manufacturing industry with complicated machinery; athletic sports and various accidental injuries are increasing the already great liability to mandibular fractures. Every case calls for individual care and from among the possible appliances the operator must choose, basing his method upon the nature of the case.

Fig. 1 shows a cast aluminum interdental splint. The fractured parts are reduced and temporarily retained by wiring, or with an external plaster splint. A sheet of base-plate wax is pressed over the occlusal surfaces of all the lower teeth, and if several teeth are missing, is pressed against the gum. Another sheet of wax is added and the patient's jaws closed, giving an imprint of the occlusal ends of the upper teeth.

Another sheet of wax is pressed around the external inferior border of the mandible extending as far back as the angle of the jaw, or it may extend upward along the ramus and as wide as operator wishes.

Wires of No. 10 gauge, or bicycle spokes, are well adapted; one end flattened, turned at right angles and embedded in wax over the occlusal portion, and the other end threaded and passing through sheaths, imbedded in wax around margin of mandible. As many wires may be

utilized as case demands. While parts are *in situ* they are chilled, removed from jaw and duplicated with aluminum by casting process.

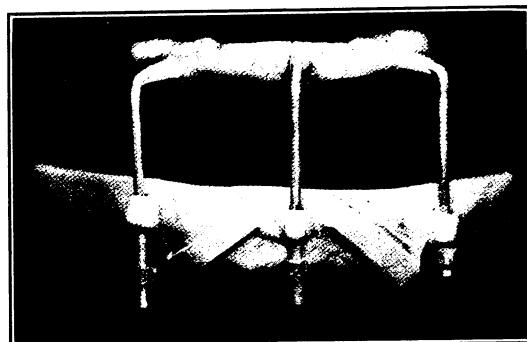


FIG. 1.

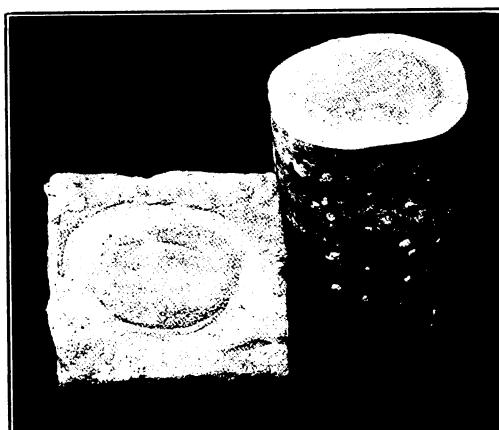


FIG. 2.

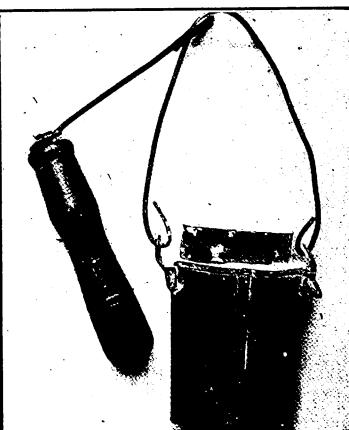


FIG. 3.

With aluminum casting, as with casting of gold, any method that obtains the desired results is good. Being master of the technique of the various methods will better enable one to skilfully execute his wish, which, no doubt, is sufficient for all ordinary cases. Any wax model, regardless of size or shape, can be cast.

**Technique
of Casting.**

The flask is made of sheet copper of sufficient size and shape, so that when wax model is invested there shall be a half inch of investment material between any part of the model and flask.

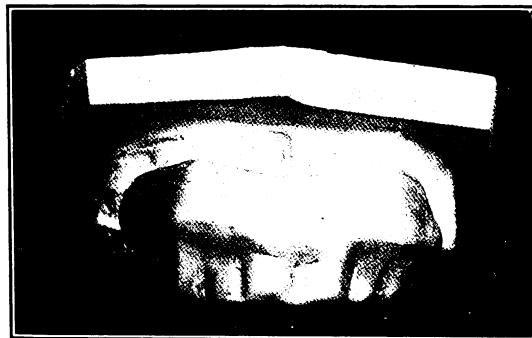


FIG. 4.



FIG. 5.

FIG. 6.

A wax sprue leads to the part of the wax most distant from the cup-shaped concavity, in the investment in which the metal is melted. There should be but one sprue, and that as large as possible without admitting the molten metal before the casting agency is applied. The concavity should be cup-shaped to prevent funneling of the metal.

A good standard investment is used (Brophy's reliable), allowed to set thoroughly, dried out gradually and wax burned out entirely. In

investing a case with rods, perforations in the sides of the flask are made through which the rods project, or the crucible may be large enough to invest both wax and rods. It is not necessary to heat the case to a red heat throughout unless casting to rods and sheaths.

Centrifugal force and steam pressure were the casting agencies utilized in constructing the pieces illustrated. The latter was used in

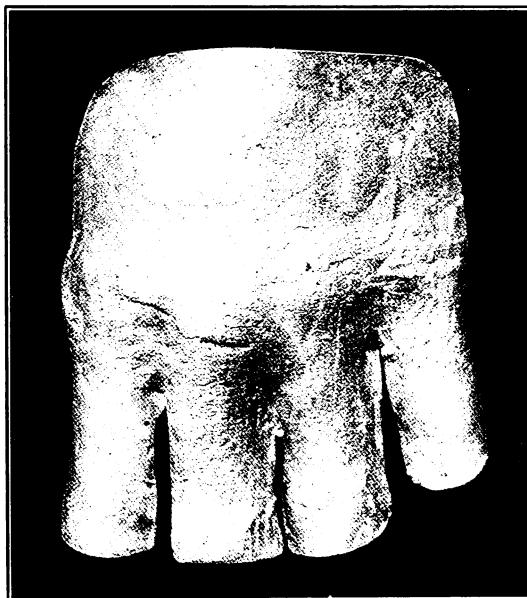


FIG. 7.

casting the larger pieces, as they, when invested, were too heavy to cast with safety to the office fixtures by using centrifugal force.

If steam pressure is used (Fig. 2), the case being heated and the metal melted, a thick sheet of asbestos, saturated with water and softened by hammering with a cowhorn mallet, is placed upon a rigid plane, and that upon the margins of the concavity and flask, enclosing the steam, which forces the metal through the sprue into the mold. If centrifugal force is used (Fig. 3), an eye is riveted to each side of the flask, through which ends of a V-shaped steel wire are hooked. Another wire, ten inches long, leads from the apex of the V to a bolt screwed into the end of a piece of wood, which is convenient for a handgrip, with a rotary



attachment. When the metal is melted the case is caused to rapidly revolve about the bolt in the hand-piece, as one would wring a chicken's neck.

Allow the cases to cool slowly, and if carefully and smoothly waxed, they require but a small amount of labor to finish and polish when cemented to the teeth and chin-piece. They are made comfortably tight with the thumb-nuts.

No bandaging is needed, the jaw is free to move and patient can rest assured that his fracture is sustained and protected.

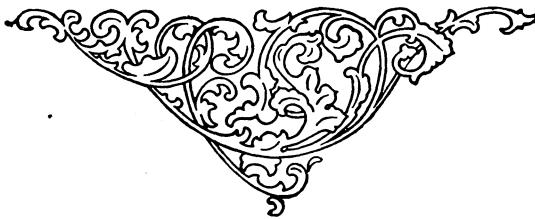
Fig. 4. Splint for anterior superior maxillary fracture.

Fig. 5. Applied splint.

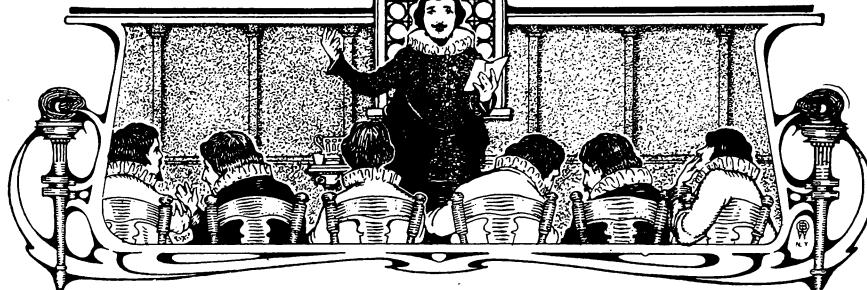
Should the upper and lower jaws each sustain a fracture, the two appliances may be used together.

Fig. 6. Chin-piece.

Fig. 7. Splint for fracture of metacarpals of hand, to demonstrate the general application of cast aluminum splints.



SOCIETY PAPERS



Does Dental Plate-work Deserve Its Present Unpopularity.

By CHARLES R. TURNER, D.D.S., M.D.

Read before the Second District Dental Society, February, 1910.

To ask your attention to the consideration of a question which has been asked and answered so many times in the course of the last seventy-five years, would, on the face of it, seem to be proposing for discussion a topic so barren of new light as to be unprofitable in the extreme. In his essay on "Circles," Emerson represents intellectual progress as advancing rhythmically. The state of knowledge upon any given subject seems for a time to stand still, held back, as it were, by some impassable barrier, until, gathering strength to itself through the instrumentality of some brilliant mind, it breaks these bounds and reaches a new level, there to remain until the boundary is passed in a similar manner. Thus, according to him, it advances by successive victories, and not in a steady progression. And so this question which the dental world has frequently asked itself from time to time, has in each instance been answered in accord with the condition of the state of knowledge of the subject to which it relates, existing when it was propounded, and if it be not repeated at too frequent intervals, it may be that the query will each time command a different reply.

In the second quarter of the nineteenth century, when the carving and baking of porcelain blocks and the swaging and soldering of gold and silver plates occupied a large part of the time of the dentist, when, in fact, this portion of dentistry had proportionately developed beyond its sister branches, there was no occasion for this question to be asked. It may be said, as Professor Truman has remarked, that this was the age of mechanical dentistry, and it might be added, the age which gave this



ITEMS OF INTEREST

work its ever-pursuing title of "mechanical dentistry." It was an age however, in which the high standard of the art consisted in the fine quality of the mechanical ability or artisanship of the dentist. The degree of this skill was the measure of the state of the prosthetic art, and while this skill was undoubtedly of the first order, and in many instances excels that seen to-day, yet, according to our present conception of this branch of dentistry, the results of that skilful labor are unsatisfying to us. The specimens of the work of this period which have come down to us inspire us with profound respect for the finger skill of the time, but when viewed as substitutes for missing tissues, their physiological incapacities become painfully evident. While the technical procedures were systematized to a considerable extent, the actual designing of the denture was without method and according to each man's notion, so that the art may be said to have been largely empirical.

Toward the end of this period we begin to find some evidences of the waning popularity of mechanical dentistry, and in 1853 the editor of *The Dental News Letter* is called upon to deplore it, stating as the objection to this work, that it was regarded as of "inferior importance," because it was "merely mechanical." That there was a decadence in mechanical skill generally following the introduction of the molded bases in the third quarter of the nineteenth century, we have every evidence in contemporaneous literature, and this was a result readily to be expected. Despite the fact that in 1850 William Hunter gave to the profession a perfected continuous gum work, and despite the fact that it was much exploited by John Allen, who obtained a patent for it, the cheaper and more easily worked vegetable bases came into pretty general use, and the mechanical art went down hill.

Toward the beginning of the last quarter of the nineteenth century, crown and bridgework came into general favor, since which time its development has been steady. It was at once a rival of plate-work, because it restored lost teeth more satisfactorily than plates, and the fact that it required a high degree of mechanical skill for its practice at once commanded the attention of those interested in the restorative procedures. During this period and up to the present time plate-work has had an indifferent attraction for the majority of the profession.

Many reasons may be adduced to account for the attitude of dentists to-day towards this branch of practice. Many of these reasons pertain rather to the greater popularity of what is included in the general term "operative dentistry," which is very comprehensive and embraces practically all operations upon living tissue and all measures tending to preserve or promote its health. Crown and bridgework itself may be said to have its relationship to vital tissues so close as to share in this interest.

A common reason for the unpopularity of plate-work is the fact that it is the court of last resort, to be invoked only when other measures have failed. The impelling motive of dentistry as a profession is the preservation of teeth, and this is undoubtedly a higher aim than their restoration. A great many elect to practice the former merely by preference. They love not Caesar less, but Rome more. It is true that as dental service is improved and extended, the need for the prosthetic branch becomes relatively smaller, but no one is so sanguine as to believe that it will ever be done away with. Among other practitioners the fact that it utilizes mechanical processes at the bench, and because this can be done in a certain sort of way by a hired mechanician, makes prosthesis seem a foe less worthy of their steel.

These are all more or less traditional influences, which, of course, are to be given due weight in the matter, but they do not pertain to the intrinsic merits of the question, upon which basis I am asking you to-night to settle it. Under the existing conditions, in its present state of development, and upon its own merits is plate-work to-day unworthy of attention by at least some of our best dentists?

The portent of this inquiry may only be reached after we have considered carefully the status of plate-work and the conditions under which it is done at the present time.

In common with all other branches of dentistry, the advancement in prosthesis since the early days of empiricism has been along the line of a truer conception of its purposes. As by its means a portion of the body is to be replaced, the functions of the missing tissues and the alterations of form and appearance incident to their loss must be thoroughly known, in order that the substitute may make proper restitution. This involves both a knowledge of the normal operation of these functions and the normal appearance of the altered tissues and the means which are utilized for repairing their defects. As the demands upon the prosthetic appliance are several, simplicity will be consulted by a division of the subject according to these. It is required that the appliance restore the functions of mastication and of speech; that it permit the normal expressive movements of the face; and, finally, that it restore, as nearly as may be, the expression of the mouth and face.

The chief factor in the progress of dental prosthesis has been the enlargement of our knowledge of the masticatory function and the mechanism by which it is accomplished. When Bonwill in 1858 in America, and Balkwill about the same time in England, applied their conception of the human masticatory mechanism to the construction of artificial plates, a step in the right direction was taken, and since that

time various ones have added, little by little, to our store of knowledge on the subject. Luce, Balkwill, Bonwill, Walker, Graf von Spee, Tomes and Dolamore, Constant, Campion and others have step by step given us a pretty clear idea of the movements of the lower jaw in mastication. Some of these, with Röse, Black, Head and others have given us a clear picture of the relationships of the teeth during mastication, and have pointed out the *modus operandi* of these cusped surfaces in crushing food. Almost hand-in-hand with an increasing knowledge of this interesting machine, has proceeded the development of the articulator, the mechanical reproduction of the human machine, and the instruments of Bonwill, Walker, Gritman, Kerr, Weiss, Parfit, Christensen, Snow and Gysi, have carried us to a point where in the cause of the last-mentioned three, we have instruments thoroughly satisfactory for all practical purposes. These are capable of being individualized to accord with the details of each case, and Snow, Christensen and Gysi have given us methods of securing these details—the relationship of the jaws to the temporo-mandibular joint, the path of the condyle, and the points of rotation in the lateral excursions of the mandible—so that we may have in the articulated casts a reproduction of the edentulous jaws and their various relationships, which enables us to set up properly functioning artificial teeth. It has also been necessary to learn by experience and experiment the form and arrangement of the artificial teeth which will permit them to perform their functions under the conditions of actual usage, changes from the form and arrangement of the natural teeth being necessary because the former are not planted firmly in the alveolar process. The work of Bonwill along this line is the most noteworthy, but that of Walker, Weiss, Wilson, Morrison, Cross, Gritman, Davis and others has served to give us a practical working knowledge of the means by which to accomplish our end.

**Better Artificial
Teeth Needed.**

Alteration of the forms of artificial teeth by grinding is still necessary to adapt them to our needs, as the forms of porcelain teeth have not kept pace with our knowledge of what they ought to be. There are at present on the market two or three molds which in unaltered form answer our requirements in articulation in a fairly satisfactory way, but these do not cover the field, and we must resort to the corundum wheel for nearly all cases; but by this means we are able to give the teeth a form entirely satisfactory for our purposes. This lack of properly articulating tooth-forms is an index which we can clearly read aright, that the profession, as a whole, does not practice the prosthetic art in such a way as to require them, or, by a universal principle of the commercial world,

that of proportioning supply to demand, we would have them. The recent agitation in the profession on this subject seems now likely to bear some further fruit, and if the demand is made general enough, the teeth will undoubtedly be supplied.

**Relation of
Teeth to Speech.**

In their relationship to speech, the functional demands upon artificial dentures are not heavy. The loss of the teeth and the changes in the surrounding tissues incident thereto, perceptibly affect articulate speech, but the majority of artificial dentures, and especially those which measure up to the other requirements of a case, restore satisfactorily the forms of these parts, so that special attention is not always necessary in order to have the appliance accomplish the end. The appliance must not only restore the missing mouth parts, but in addition, its form must be such as not to interfere with the performance of this function. Fortunately the tongue, which is the chief agent in articulation, is capable of adjusting itself widely to changed conditions in the mouth, and this simplifies the problem very greatly. But cases present occasionally in which careful attention must be paid to the speech requirements of the dentures, and in these only a thorough knowledge of the mouth's part in the mechanism of speech production, and especially in the articulation of the consonant sounds, will enable the dentist to obtain the desired results. Snow has pointed out clearly the defects commonly found in dental plates, which produce an incorrect "s" sound, the error most commonly met with; but other errors arise in some cases, and only familiarity with normal physiology will enable us to correct them.

**Restoration
of Physiognomic
Expression.**

The expressive movements of the face are also usually restored by properly designed dentures, but here again any departure from the normal in a given case can only be corrected by knowing the normal activities of these muscular co-ordinations.

The restoration of the fixed expression of the face involves not only an ability to read, from the edentulous mouth, the story of its former appearance, a datum which its tissues can give us to some extent, but a knowledge of facial profiles and contours, with which to fill in deficiencies in the information we obtain from the tissues. While a familiarity with the standards of art will be useful in the task, this is not indispensable, for observation and experience will give all the artistic skill which will be necessary. It is required, however, that one shall be familiar with the temperamental classification of mankind, and the physical characteristics of the teeth in the various classes, in order that the artificial teeth may have a harmonious appearance in the mouth. It is quite true that the temperamental classification has not a scientific basis, but for lack of a

better it is a fairly satisfactory working method for the selection of harmonious teeth. Also it is equally important to have a knowledge of the effect of age and use upon these teeth, so that they may be altered to accord with the requirements of an individual case. Considerable observation and experience are necessary to imitate these effects of age and usage, but they have been amply described and the information is at the disposal of him who lacks knowledge through his own experience.

If we may agree that this is a correct narrative of the possibilities of dental prosthesis as it may be practiced to-day, we may now ask ourselves if it is worthy of the attention of some of the best of our profession. And, in reply, we must take full account of the reasons which influence one to give attention to one branch of professional activity in preference to another. Is dental prosthesis interesting intrinsically? Is it worthy of our best effort? Does it require skill?

**Attractiveness
of the Art for
Specialists.**

Concerning interest, Herbert Spencer says, in substance, that the more diverse the application of a subject, the more diverse its aspects, if, as a whole, it is entirely harmonious, the more interest it has for us. Concerning skill we must enlarge our conception of the term mechanical as applied to this art. We may do this by not confounding the term "mechanical skill," meaning "artisanship," with "skill in mechanics," which refers to the theory and science of machines. Our art has developed to a point at which ability in designing the appliance, in planning its architectural scheme, in arranging its operating details, is of more importance than the mechanical skill, the mere artisanship necessary to work the materials into designated form. From the economist's standpoint this is as much more valuable than the value of the artisanship, as the latter is worth more than the materials themselves. The course of operative dentistry, so far as it relates to filling operations, is quite similar. The days of Varney and Web, after the introduction of cohesive gold, were those in which the highest order of skill in manipulating gold existed; but now, since the researches of Miller and Black have given us a more rational basis for these operations, the first technical consideration is the preparation of the cavity to prevent a recurrence of caries, and skill in the inserting of the gold is but one of the important considerations.

While we seldom find in nature the masticating mechanism in its idealized form, perfect in every detail, perhaps never find it so, yet a sufficient number exist so nearly perfect, that for all practical purposes we may regard them as such. And in this form it is indeed a beautiful machine, the mechanical details of which and their fitness for the ends

of the mechanism must command our admiration and respect. Indeed, I believe that the crux of the whole question largely devolves upon this matter of having an idealized view of the dental mechanism and its mechanical details, and that the most potent impetus in plate-work arises from a knowledge of this machine and the ability to imitate it.

Nothing else has given orthodontia the stimulus which the acceptance of occlusion as its basis has done, and nothing has excited interest so much in its practice as the possibility of bringing teeth to accord with the standard of normal occlusion. Yet this, the occlusion of the teeth, is but one of the details of the dental mechanism with which the prosthodontist has to do, and the articulating relations of the teeth are even more wonderful and worthy of affectionate regard.

It should also be said that whereas few natural dentures exist which exhibit perfect details of this ideal typal plan, yet in the artificial dentures we have control over the form and arrangement of the teeth and can conform them to it as we desire. And we should not forget that artificial teeth are not implanted in the alveolar process, nor is it possible to exert as much force through their agency as natural teeth permit, and that, therefore, certain departures from the form and arrangement of the latter are necessary in artificial teeth to make them accord with these two conditions. But by reason of these two facts it is all the more necessary that artificial teeth should conform to the ideal typal plan in order to get anything like the greatest degree of efficiency.

Limitation of Artificial Teeth. But some will say that since we are dealing with living tissue as an element in the mechanism, the precision which is required with fine machines is impossible; or that if it be attained in the articulated teeth on the mechanical articulator, it will not obtain in the mouth. There may be two reasons for this, in cases in which it is true. The commoner reason is that no articulator has yet been constructed which will imitate with mechanical precision the movements of every joint, because they can not allow for the compression of the soft tissues at the joint, but those I have mentioned do it well enough for all practical purposes, and the actual trial of the teeth in the mouth, before they are converted into permanent form, will serve to correct the inaccuracy. The other reason offered is that the personal equation can not be measured in terms of mechanics, and that this idealized mechanical plan can not be applied to humans. The reply to this is that the machine must be adapted to the individual case, and that it will fail if this is not done. This is indeed the rock upon which many with high ideals for the mechanism may split. The physician can not conduct his practical therapeutic treatment upon an inflexible idealized basis. He must adapt it to the individual. He as

often has to treat a sick mind as a sick body, and in text-book therapeutics we find no provision for this. The plate-worker must adapt his mechanism to the ability of the individual for whom it is intended. Also, he must make it perform its function by teaching the individual to use it. The apparatus is at best a substitute, and the individual must acquire facility in using it, though this does not mean that the appliance must not first conform to the highest known mechanical standard. To a certain extent new coöordinations are necessary in the use of the best artificial plates, largely because of the comparative instability of the teeth, and the human organism can usually attain these. There is, fortunately, the ample provision for this on the part of nature, although the plate-wearing age is one in which new coöordinations are acquired with difficulty. This ability of the organism must be taken into account.

The ophthalmologist has somewhat an analogous problem in the correction of refractive errors, but his work is infinitely simpler, for his apparatus is constructed by the optician according to specification. But the personal impress of the individual case must be taken into account, and the exact correction of the optical error is seldom done. Experience proves that it is usually feasible to under-correct a hyperopia and usually over-correct a myopia. It is this generous provision of nature in over-providing for evident needs which has enabled people to utilize prosthetic pieces that are far short of what the best judgment would dictate. And it is this which has given prosthetic pieces a reputation for satisfaction, because their wearers have been able to accommodate themselves to their unphysiologic design and have learned to use them in spite of their deficiencies. But this, of course, is no argument against the construction of such pieces to accord with the best possible judgment obtainable.

Some decide the question of occupying themselves with plate-work upon an economic basis; that the compensation is not adequate for the time involved. The result of this point of view is that the majority of the best dentists treat cases occurring in their practice after the following method: They secure such data as they deem necessary, and transfer the work to the laboratory man, or to some other practitioner who does such work. One defect in this system is that there is no contract between the one who really designs the denture and the patient. It is absent treatment. Another is, that the dentist himself, not being interested in prosthetic work, does not secure all the various records necessary, or if he did, there are practically no laboratory men now obtainable who are sufficiently skilled in using these records to be able to produce a really physiologic denture. The results of these two conditions are that the patient secures a denture of superior mechanical construction, perhaps,

but of inferior mechanical design, a mere occluding denture. The charge to such a patient is largely proportioned to the operator's time, which is short, and the laboratory charges, which are not heavy; and what the patient gets is worth about what it costs. On the other hand, if the public mind is to be enlightened as to the possibilities of prosthesis, and a good fee is charged, it can be obtained. I have no objection to the division of the work so that the actual mechanical work may be done by another, but this should be according to exact specification which the dentist himself should plan.

Finally, the gaps in the scientific method may be fitted in by research work, which offers an attractive field to those who might be inclined toward this instead of actual participation in the practice of prosthesis. We have not reached the "*Ultima Thule*" in our technique. We have yet the whole field of tooth forms to revolutionize, although several master minds are addressing that problem now. While we have satisfactory articulators, it is not likely that their ultimate form has been reached. Beside porcelain, we have no really satisfactory material for gum restoration; and, finally, the lack of scientific basis for temperament disqualifies it to some extent for our purpose, and there is an almost infinite field for work in this direction.

With these possibilities, is it fair that plate-work should receive so little attention? While it will never be the chief absorbing topic of the profession, the favored son of the father, as Joseph was of Jacob, yet like him when it has been cast out and become unloved by its brethren, some day it may be carried into Egypt to again rise to a position of prominence.

The Education of the Public as to Dental Needs.

By C. E. BENTLEY, D.D.S.,
Read before the First District Society at Fairfield, Ia.

The dignity and the usefulness of any group of men is in direct proportion to its contribution to the public good. There is no gainsaying this statement. In its finality it is axiomatic.

With this proposition before us, it will be my purpose to endeavor to emphasize it, so as to justify some of the references I may make regarding the group with which we are identified. That the dental profession is not realizing its possibilities and fulfilling its highest duty for the common good is so patent that it has only to be mentioned to be admitted. That the verdict of latter-day hygiene and sanitation seeks to prevent rather

than to repair diseased tissues is known to all votaries of the healing art. That the unclean mouth is the habitat of disease germs that are a menace to health; that carious teeth do often become the abiding-places of pathogenic organisms, and that malocclusion and masticatory insufficiency induce stomachic and intestinal disorders, neurasthenia and a host of functional disturbances are known to all of us. Again, when I tell you that less than twelve per cent. of any community pay any attention to the care of their mouth and teeth, I tell you a fact, the importance of which is hard to realize when we consider how puerile and primitive our organized efforts have been to contribute our quota to the public good.

Professor Osler has said: "If I were asked to say whether more physical deterioration was produced by alcohol or defective teeth, I should unhesitatingly say defective teeth." Frederic Treves, the distinguished surgeon says: "Everybody seems to be on a diet. If people were a little more careful about their teeth, they would not need to be so careful about their diet." The dental profession has known these facts and many more for a long time, but it has not proclaimed them—I mean proclaimed them in an organized way. As a result, the reading world is startled when the daily press heralds such utterances from these eminent authorities from another profession, and with righteous indignation turns to the dental profession and says: "Why did not you tell us these things?" Horace Fletcher, a layman, has done more in a few years to concentrate the minds of the people upon the need of thorough mastication than has the whole dental profession during its entire existence. In short, he has done more for the public good in this regard than have all the dentists combined. This wholesale indictment of our profession should then act as a stimulus to greater effort, a larger usefulness and a higher place in the public's estimation; for, remember, that our dignity and worth will be in proportion to our contribution to the public good.

Let us take a cursory glance at some of the evils

Evil Results of that result from neglected mouths and their environs.

Oral Neglect. 1. Carious teeth. Cesspools of bacteria—often

malignant—which, under favorable conditions, may produce the disease peculiar to its character.

2. Alveolar abscesses—(chronic) pus-geysers. During the act of deglutition myriads of pus germs are swallowed, and the wonder is that greater harm is not evidenced. As it is, we know that these germs are directly responsible for much of intestinal derangement and stomachic disorders. Further, these abscesses may, by lifting the periostium, produce necrosis of the jaw in which they are located, often necessitating surgical interference for their cure or removal.

3. Jagged edges of decayed teeth or roots often produce a local irritation of the mucous membrane that may eventuate in cancer or some other malignant growth. General Grant sacrificed his life thus, as have many others of less distinction.

4. Insufficient mastication due to lack of teeth. This has only to be mentioned for its importance to be recognized.

5. Pyorrhea alveolaris (so-called). The constant exudation of pus into the mouth often gives rise to the infection of tonsils, the post-nasal zone, and an inflammatory condition of the alimentary tract and the antrum.

6. The host of diseases peculiar to children, many of which can be traced to the neglect of the teeth and mouth.

7. Irregularities of the teeth of children that can, with comparative ease, be corrected in youth, and which become intricate problems later in life, with their attendant facial deformities and asymmetrical contours.

These are but a few, comparatively speaking, of the consequences resulting from the neglect of the mouths and teeth of children and adults. I have left wholly unmentioned the surgical aspect which is a field of itself.

Investigation shows that 96 per cent. of the inhabitants of Sweden have defective teeth. America comes second with 93 per cent. Of army recruits 20 per cent. of Germany, and 24 per cent. of England, have practically useless teeth. Of 18,000 young men refused enlistment in the United States army in one year, 1,000 were rejected on account of bad teeth alone.

A compilation of statistics, too tedious to be read here, reveals the fact that from 92 to 95 per cent. of the school children at home and abroad have defective teeth. In Strassburg, Germany, 2,103 children between 6 and 8 years of age were examined. One hundred and sixty had sound teeth—about 7 per cent. This, then, is our declaration of particulars, our bill of evils. How can we remedy them? How can they be minimized? Only by giving the widest publicity possible to the facts, together with their minimization or prevention.

The partial accomplishment of this can be effected in a number of ways:

1. By lectures.
2. By tracts and booklets.
3. By the press.
4. By examination of the teeth of school children in the public schools.

Through dental organizations opportunities should be sought to inaugurate and carry on a series of lectures by their accredited representatives before various organizations whose ultimate aim is for the benefit of the citizens



of that community, such as mothers' clubs, women's clubs, teachers' associations, improvement clubs, etc. These lectures should not be didactic nor technical, but should be reduced to popular language, and, if possible, accompanied with stereopticon and slides. This is one of the most popular means of disseminating knowledge of any kind, and has been used by dental and medical organizations to good effect in various places. It has an advantage over a printed thesis in that the audience has the privilege of asking for explanation upon a point that might not be clearly explained in print, and can seek that added information from the speaker direct.

**Tracts and
Booklets.**

The advantages of these media of distributing information are manifold. A limited number may hear a lecture, but an unlimited number may read what is printed upon that same subject. Again, it is permissible to enlarge upon and differentiate your subject in printed form, whereas certain exigencies impose limitations in that regard when speaking from the platform. Therefore, tracts and booklets are a powerful and useful means of spreading any gospel, and especially that of cleanliness of the mouth and teeth with which we, as a profession, should be vitally concerned. One way in which this could be done through dental organizations, thereby safeguarding against personal advertisement, selfish aggrandizement and incompetent material, is that a committee should be appointed to compile, write and edit such a booklet or pamphlet, and the same could be issued under the auspices of the society. These could be sold to the members for a nominal sum (one not to exceed the cost of publishing), and they in turn could be sold or given to the patients or friends of the individual dentist, as he might elect. The cost of publishing would thus be returned to the society, and it would have used one of the agencies in distributing information so sorely needed by the general public. This booklet should be a treatise on the care of the mouth, using the simplest language possible to explain the various stigmata so well known to the profession. It might also be advisable to impose a law to the effect that no names appear upon the booklet, that it should be sold only to members of the society, and that "compiled under the auspices of Association," be printed in a conspicuous place upon its cover. This plan is being tried by the Illinois State Dental Society and is working well.

The Press. The most powerful means of making or unmaking public opinion or affecting popular thought is the daily press and the current magazines.

Can this power be used without lowering the ethical standards we have raised, or disintegrating the ethical *esprit du corps* which we have created? Heretofore we have eschewed this means of proclamation because of its

power and bewildering allurements. The temptation to use this force to gain an undue advantage over a confrere can not be resisted by all men alike, and hence the ethical law has been specific regarding this means of advertising. Therefore the medium of diffusing knowledge pertaining to our cause should be approached with extreme caution. But, I think that the time is past when we should refuse to use the Press to advance the cause of the good of the community in any way, because we may have some fine-spun ethical theories regarding it. Of course, this, like the booklet, should be under the direction of the society, and any article appearing should be made wholly impersonal. A press committee, or committee on publication should, in such cases, have charge of this matter. The Press is pre-eminently the means of educating the masses. Dentistry has never seriously used it for this purpose. Intelligent agitation in the Press will accomplish wonders along this line. I believe the Press would be glad of the opportunity to publish carefully prepared articles upon these subjects, emanating from the State or local dental society. Let us rid ourselves of the ancient fetich regarding the daily press and throw about this powerful ally such forces of regulation as to make its use a benefaction to the public weal.

"We herald a day that is coming,
The hope of the race is the child."

Public Schools. The idea that dentists should examine the mouths of children in the primary grades of the public schools for a long time has been endemic. To-day it is epidemic. Sporadic outbursts in all parts of the country attest to the smouldering condition. In parts of England, Germany, France, Sweden and Japan it has reached a high degree of systemization. In the United States free dental services are rendered to public school children, notably in Cleveland, Ohio; New York City; Milton, Pa.; New Haven, Conn.; Boston, Mass.; Baltimore, Md.; and Rochester, N. Y. It must also be remembered that there are about sixty dental colleges distributed in the larger cities, and that all these have free clinics attached to them, and that a small percentage of school children is served by them. But, in spite of this, there still remains the unpleasant fact that 93 per cent. of the children in the United States in our public schools suffer from the ravages of defective teeth. Do you not see that what is needed with the school children is a campaign of education, widespread and deep-rooted? With the lecture, the booklet and the Press must come the actual contact of the child with the dentist who will make the examination and the recommendation to the guardian or parent. In every instance where this



ITEMS OF INTEREST

has been done in the United States, in the cities mentioned above, the services of the dentists have been gratuitous. In Rochester, N. Y., the city, recognizing the importance of the work and the unselfishness of the dentists, have erected a dental hospital, and conducts a free clinic under the auspices of the Public Health Association. In Cleveland, Ohio, the city buys the material and the Dental Association does the work free. In Milton, Pa., the worthy poor school children are taken care of by the dentists of that city, they working alternately without compensation. And so I might cite various communities where similar work is being done, and in every case the dentist is giving his service, and in many cases his material, without compensation.

This should at once relieve the profession of the charge that has been made, when this subject has been discussed by school boards and others, of having an ulterior motive. Wherever this idea has attained any considerable growth by reason of its agitation, there have always come forward a number of volunteers who have tendered their services without hope of reward, save that return which comes with the satisfaction of having done a good deed. There is, however, the remote hope that the importance of this subject may become so apparent that municipalities will maintain, at their expense, dental clinics and pay a reasonable sum to those conducting them.

Why should it be less reasonable to have visiting dentists than visiting music teachers, and drawing teachers, and teachers of physical culture? When the masses realize that it is just as important to have good teeth as it is to have any of these arts, they will have visiting dentists, and it is the duty of the dental profession to see that they know this. The most important argument in favor of the examination of the mouth and teeth of school children is the educational benefit it would be to the community. Is it not the duty of the schools to arouse society to intelligent thought on the importance of better modes of life? Is it not the duty of the schools to train persons to live better? Is not this the true purpose of the schools? The logical place to begin this is with the physical life of society, the one phase of life that has been most ignored in our educational methods until very recent times. One result of the more intelligent interest of the people in matters concerning the health of children is the introduction of expert medical inspection in to the schools. Thus far this inspection has confined itself largely to the sanitary condition of school buildings and the general health of the pupils. If there has been any specialization it has been examination into the condition of children's eyes and, perhaps, the nose and throat. One important factor has been disregarded, and that is the need of periodical dental inspection. We

learn that among children toothache and neuralgia are fruitful sources of absence from school.

As Elbert Hubbard says: "The care of the teeth is an important factor in the care of the child."

The mental and physical efficiency of school children can be greatly aided by the proper care of the mouth and teeth. This is fully attested by experiments in Germany, which cover a wide field. There, dental infirmaries connected with the schools have been in operation long enough to demonstrate:

1. That the time expended in putting the teeth in order was far less than the time formerly lost from toothache and disability caused by diseased teeth.
2. That the cost of keeping the teeth in order was more than compensated for by better health and a consequent reduction in medical expenses.
3. That the child became physically stronger, secured a higher average in his studies, was easier to control, and was apparently happier.

A clean mouth and clean teeth furnish one of the best protections against disease. A child forced to swallow the discharges from an unclean mouth, and having nutrition interfered with by his inability to chew his food, is unable to resist disease.

The condition of the teeth is a tell-tale as to diet. They are the guards which stand at the gate of the body, ready to divide the food into manageable portions, to bring peace of mind and healthful bodily activity. No greater kill-joy exists than dyspepsia; no more vicious menace to life and efficiency obtains than a disordered condition of the process of nutrition. Cancer of the stomach is notoriously the disease of gross feeders. Eighty per cent. of the cancers of the stomach arise from bolted food. If an ounce of prevention is ever worth a pound of cure, it is keeping the teeth in good condition.

It is also a fact that children rarely use tooth-brushes. Dr. C. E. Francis says: "Some mouths, so far as the invasion of the tooth-brush is concerned, are unexplored caverns of a miniature type; and others which receive an occasional visit from this intrusive explorer, are not in a much better condition, for the little care bestowed upon them."

A medical examiner who inspected the mouths of 1,000 children, found only two who used a tooth-brush.

A tooth-brush drill is needed in our public schools. That a *clean* tooth will not decay, and that decay is caused by *septic organisms*, must be widely taught.



**Revision
of School Books
Needed.**

A number of loose examinations are upon record available to the investigator of this subject. These examinations have been made for the purpose of getting a general idea of the state of the children's teeth, but from them it would be impossible to draw any exact conclusions. A much more careful examination, however, was made with mouth mirror and probe, by an inspector of every tooth of 245 children, who found that each of these children had 3.9 carious deciduous and 2.8 carious permanent teeth. 9.3 per cent. had alveolar abscesses or fistulæ discharging pus; 16.3 per cent, chronic pharyngitis; 2.9 per cent. showing chronic enlargement of tonsils; 61.2 per cent had enlarged submaxillary glands, and anemia was noted in 37 per cent. Beyond a few instances where teeth had been extracted or broken, there was no evidence of dental treatment, and the tooth-brush was practically unknown. Only three of the above-mentioned children possessed tooth-brushes or showed signs of having used them regularly, and these three were practically free from caries. Bacterial deposits, tartar, food remnants and a general malodorousness was generally found.

Do these conditions warrant a campaign of education and agitation? Are these physical disabilities to the children of sufficient gravity to justify our cry of "Danger here!" Are we fulfilling our full professional obligations to the public good, unless we bestir ourselves in this regard?

Another plea I must make is that the whole subject matter pertaining to the care of the mouth and teeth must be re-written in our school physiologies. What these text-books say upon these subjects are, as a rule, wholly inadequate and misleading. I might give a number of citations to justify this remark, but the time will not permit. I can not resist the temptation, however, to refer to one physiology which has been translated into five different languages, with several hundred thousand copies published. Listen to this extract:

"The teeth are bony keys set in the jaw-bones. Those in the front part of the jaw are sharp, so as to bite lumps of food. Those in the back part of the mouth are flat, so as to grind food to pieces. Between the ages of 6 and 13 the child loses its first teeth and gets a whole new set, and 8 additional ones. Biting hard things, such as nuts and wood, often breaks the enamel and causes the teeth to decay. When the decay reaches the nerve, the tooth aches and becomes very tender."

This is fairly characteristic of what one may expect in our school text-books on this subject.

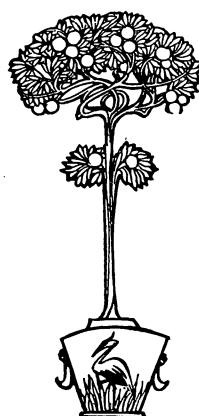
My plea is for more exact data concerning this subject, in order that the child may have a working idea of the teeth and their associate parts. This data need not be technical nor involved, but it should be intelligible.

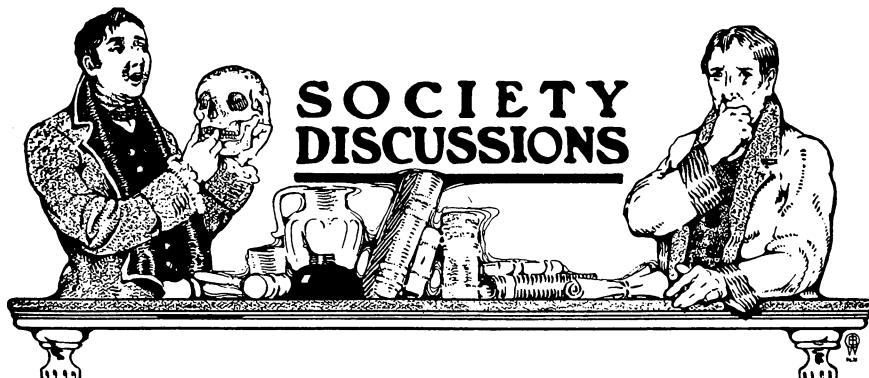
It seems to me that the one to give these facts is he who is most conversant with them. Therefore, I claim that the dentist should supervise this chapter in our text-books. What has been written has been by physicians. The time has arrived in the development of our young profession, when we not only recognize the insufficiency of this knowledge and the inaccuracy of its data, but we have developed an army of men who are capable of giving fuller and more exact information and more accurate and reliable data.

And, further, I believe that the acknowledged usefulness of our profession and its contribution to society's well-being has enhanced our worth in the public's esteem and that they are willing that these things should be written by dentists.

I need hardly say to you, in conclusion, that our responsibility is the central thought of this paper; that the limited instruction given in our public schools on the care of the teeth is not sufficient; that the mere filling of a tooth, as typifying dental clinics, or the reading of papers to or at each other, is not fully living up to our obligations. We are called upon for more than this, and our code of ethics demands that we shall "educate the public mind so that it will properly appreciate the beneficent efforts of our profession."

Dental education of the public, especially children, given by or under the auspices of our district and State associations, will do more to stop quacks than legislation, and will tend to a larger appreciation of the true spirit of professional dentistry.





Second District Dental Society. February Meeting.

A regular meeting of the Second District Dental Society of the State of New York was held on Monday evening, February 14, 1910, at the Kings County Medical Society Library Building, No. 1313 Bedford Avenue, Brooklyn, N. Y.

The President, Dr. Van Woert, occupied the chair and called the meeting to order.

The Secretary read the minutes of the special meeting held January 17, 1910, which were approved.

The Secretary read a communication from the Bureau of Charities, stating that friends have agreed to furnish a sum up to \$2,000, necessary to equip and furnish materials for a clinic, to be held four days each week at first, and for an additional day or days later, if found necessary, and that they will appoint a permanent committee to have charge of the clinic, in which the Brooklyn Bureau of Charities shall be represented. Patients to be charged fees to carry on expenses.

I take great pleasure in introducing to those of **President Van Woert.** you who are not acquainted with him, Professor Charles R. Turner, of Philadelphia, as our essayist, and I want to say what I said at the special meeting, that we are under a double debt of gratitude to Dr. Turner for his kindness in coming to the front, when our essayist for this meeting had to ask for relief, owing to the death of his daughter. Dr. Turner immediately responded, and came this month instead of next.

I feel myself indebted to the Society. Dr. Van **Dr. Turner.** Woert was courteous enough to ask me last winter if I would come here and meet you this winter. I



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accepted, for I felt that this was an opportunity not to be missed. The topic I have selected for your attention is not the one which I had intended to present next month, but it is along the same lines.

At the request of Dr. Gough, I brought over a few slides to illustrate some of the generalities with which I deal, and they are merely to refresh your minds on some points which, of course, are quite familiar to you.

Dr. Turner read his paper, which was entitled: "Does Dental Plate Work Deserve Its Present Unpopularity?"

Discussion of Dr. Turner's Paper.

The paper deals with the unpopularity of this

Dr. Ellison Hillyer. particular phase of our work. Unquestionably there has been and is a great deal of unpopularity, and it is

for us to solve the problem as to what causes it, and then to find out what can remedy it. It is easy to realize that there is a greater interest to-day than there has been; for, if you will look at the topics we have had presented, including to-night, we will have had three papers upon subjects of general prosthesis out of six papers read to us this year. That does not appear like unpopularity in our district. I think we may as well face the truth and agree with Dr. Turner in one of his premises to-night, that the financial part of the difficulty is the chief one. If operators could obtain as much per hour for prosthetic work as they do for their ordinary operative procedures, I believe more would practice it.

I do not think there is a single specialist in this line in our city to-day—possibly Dr. Meyer may be considered as one—but otherwise I know of no other specialist in this branch. There are prosthodontic specialists in other cities, and there will be here. Now, taking a case such as Dr. Turner showed on the screen. It is claimed there should be at least eight hours spent in properly articulating a set of teeth like that. You can calculate upon your own estimation what that set should command in fees; but in most cases it does not command so much. I believe that is really the crux of the situation.

On the other hand, there has never been greater interest in this subject than there is to-day, and anyone who is following the trend of it must feel it in the air. Look back and think of the men who have been investigating it for twenty-five years, outside of Dr. Bonwill; such men as Walker, Christiansen, Snow and Gysi; and from the last I believe we have probably the finest exposition of this subject that we have to date. The advance from Dr. Gritman to Dr. Snow was the greatest we had, for, as Dr. Turner showed you upon the Gritman articulator, he could use the face bow, and transfer the bite to the articulator exactly as it was in the mouth. The advance from the Gritman to the Snow articulator



supplies the movable condyle-path, whereby the articulation upon the two different sides could be recorded. This affords us the opportunity to get the case articulated as it should be, with the true relation of the median line to the temporo-mandibular articulation.

I believe there is another great advance that has come to our attention, and we must thank Drs. Clapp and Ulsaver for progress along these lines.

With regard to artificial teeth, there we meet what has been a great drawback, for there are only about half a dozen molds—giving a liberal estimate, out of the six or seven thousand in existence—that really approximate what is called “normal occlusion,” and admit of any kind of articulation. This has been due to the fact that no teeth that were set up in the carved form were articulated before they were made. That is a strange fact, but it is true. I believe that, with the advent of Dr. Williams, if all he dreams of comes true, that with the fifty molds that will be provided, there will be a possibility of providing proper teeth for any condition.

It is needless to say we expected a very pleasant paper from Dr. Turner, because as Dr. Nash said to me, “Thank God, these men who come from the South never lose their accent.” We like to listen to them, no matter what they say, and we always know when we have a paper from Dr. Turner, it is worthy of being listened to by the best bodies in the profession.

We have with us the president of the New York **President Van Woert.** State Dental Society, and we would be pleased to hear from him.

Dr. B. C. Nash. This is the second time I have had the pleasure and privilege of attending a meeting of the Second District Society this season. The first time I believe we also listened to another gentleman from the South—Dr. Ottolengui—and in connection with this special subject, I think Dr. Ottolengui is on record as advocating a method which, if I remember right, he acquired from Dr. Kingsley, by which the bite, the basis for his future operations in the setting up of the teeth, is so established that he could see no need of trying in the teeth before completion; in fact, he preferred not to do so.

I feel I could not add anything to the discussion of this paper, except to say that there is a need for more specialists. It is a little remarkable, but Dr. Hillyer's allusion to Dr. Meyer is correct. He is the only recognized specialist in prosthetic dentistry in New York. I had occasion to meet the question. A patient was referred to me by a fellow practitioner, who had probably done everything that was possible in the case—one of prosthetic restoration. It seemed more convenient that the patient should



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come to me than to him. I carefully weighed the matter and advised with the patient, and I then thought it best that she consult a specialist who could, in all confidence, take the case and carry it to completion; but when the suggestion was made, she seemed surprised that I could give her the name of but one such specialist.

That shows the need for more specializing in this important field of work, and the trend of the times will doubtless supply the need.

I can only commend the beautiful presentation of Dr. Turner.

As President of the State Society, of course, I have a considerable interest in the various district meetings which I have attended through the State, the only exceptions now being, I think, the Sixth District and the new Ninth District. The societies are all active, and I believe they have the welfare of the State Society at heart. There is no doubt that the Second District Society has always done its part, and I trust there will be the usual representation at the next meeting of the State Society.

I thank you, Mr. President.

We have with us one of our members who is **President Van Woert.** very much interested in this subject, and who does a great deal of beautiful work. I know you will be glad to hear from Dr. Nies.

Dr. Nies. I am greatly surprised to hear our President say that about me. I did not know it, I am sure.

One particular photograph interested me, and that was the one that showed one of the earliest dentures. It showed a lower plate, saddles connected with a bar, and I believe the essayist alluded to that as a great piece of work. At the dinner given Dr. Taggart, I chanced to be seated with a gentleman of this Society, who said to me: "Nies, have you ever used the lower bar-plate?" I replied: "No; I never heard of it. How do you use it?" He told me: "This plate is used in partial lower dentures, where the anterior six or eight teeth still remain." He stated that he usually swedged up gold saddles for the molars and bicuspid spaces. He connected these with an oval bar of gold, which united both sides, and ran under the base of the tongue. I began making such plates, always in connection with the Bonwill clasp, and I found them a wonderful advantage in my work. I have put in, perhaps, one hundred of them since, and in most cases—in fact, in all of the cases—patients have spoken of the comfort they gave, and how much superior they were to the old-style plate that had rubber or metal running about the entire jaw.



Dr. Hoag.

I have used lingual bars for the last year, and I have cast them, making the clasp around the thick part of the enamel. I find they work very nicely. When I wanted to make them cheaply, I have used a piece of square platinoid wire, and covered that with rubber. I have several of those giving good service, and the patients do like them very much.

Dr. Hillyer said something about the molds of teeth. It gives me pleasure to hear someone say that there are men working for real anatomical molds of teeth. I think it is a downright disgrace for the New York State Society to submit to the molds of teeth given to us at the dental depots. Only to-day I was at one of the dental depots talking with one of the men about these things. I asked him how we got such molds. He said: "Before any molds are made up, we have to pass on them." I said: "What do you know about the molds of teeth?" He said: "Well, we know what sells best!"

It reminded me of the story of the man who bought a razor. He took it home, and made a pretty bad job of the shave. When he took it back to the man from whom he bought it, he was told the razor was not made to shave with, but made to sell.

Dr. Hellman. I should like to ask what the gentleman means by articulation, when he speaks of occlusion. According to the orthodontists, ideal occlusion is the normal relation of the occlusal inclined planes, when the jaws are in position. I think there can not be any improvement on occlusion if it is normal.

Dr. Turner. I am much obliged to you for giving my paper so much discussion. I wish I could be quite as grateful as I ought to Dr. Hillyer for his double back-handed compliment which he and Dr. Nash handed out to me. As nearly as I can get it, the sound of my voice was what pleased them. [Laughter.]

I think Dr. Hillyer has hit the nail on the head, as much as we hate to admit it. The money question—the question of pounds, shillings and pence, of dollars, dimes and cents, has a great deal to do with the popularity of this subject. I wish it were not so; but, yet, I am bound to believe, as the public becomes educated to the value of rational service in this respect, as it has to rational orthodontic service, that fees will be better in that particular.

I think Dr. Hillyer is right in saying a very pronounced step forward was made from the Gritman to the Snow articulator. That same step was made in passing from the Bonwill to the Walker articulator, with this possible reservation: that the Walker instrument was never put on the market, and was not in a practical form, whereas the Snow



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articulator was. To my mind the principle in that, outside of its function, is most excellent. I was pleased also to hear him speak of the work Drs. Clapp and Ulsaver are doing, and I heartily agree with his commendation of it.

There is only one thing which should be said by way of completing the subject, and that is, it is not perfectly feasible to work out the condyle paths in all instances. I have previously said this to Dr. Ulsaver in person, so I am not attacking him behind his back. The working out of the path depends upon having set a fixed line in front, and in some instances when you go to work out the curve, it comes up so close behind that it almost cuts off the upper third molars.

I have recently had in hand a full restoration of the lower jaw; in the upper jaw the molars and bicuspids were present on one side. They were too short in front, as I thought, and I proposed to use gold castings to make them accord with the plan. I took the bite and prepared for the castings, and dismissed the patient. After it was set up on the articulator, I found the distal molars were so very long that I could not make out a satisfactory curve, so I sent for the patient and cut them off as much as I dared, and still they seemed too long. Then I resorted to a trick; that is, I set up the teeth sufficiently in accord with the curve of Spee, to have some contact, and then I set up the teeth on one side to accord with the curve and the relative height of the buccal cusps; and then I did not know what to do with the other side, when I found I could get the same motion without having them accord with this plan. While it departed from the ideal results in that particular, still, when it was put in the mouth of the patient, absolutely the same result was accomplished.

It is interesting, in connection with working this out, to recall Christensen's work in endeavoring to prove the conclusions of Graf von Spee. He tells us that he put two plaster blocks on his articulator, and put pumice between, and ground them until the upper one was ground to a convex surface. I have tried that. I was just in the frame of mind of being elated, when a gentleman called me into his office, and asked me if I would like to see an old set that had been ground out—block teeth mounted many years ago—and they had ground out to exactly that curve, not absolutely so, but with the slightest stretch of imagination you could see the whole recent method of cusp and curve represented in that set.

Dr. Nies was good enough to allude to one of my slides. I think there was in his mind at the time the idea that I alluded to the lower plate not with a great deal of respect. I did not intend to have that lack of respect apply to the lower bar-plate, for with him I have used that with a great deal of satisfaction. Many years ago, at the time I was engaged on the text-book, a gentleman came all the way from Atlanta to show me



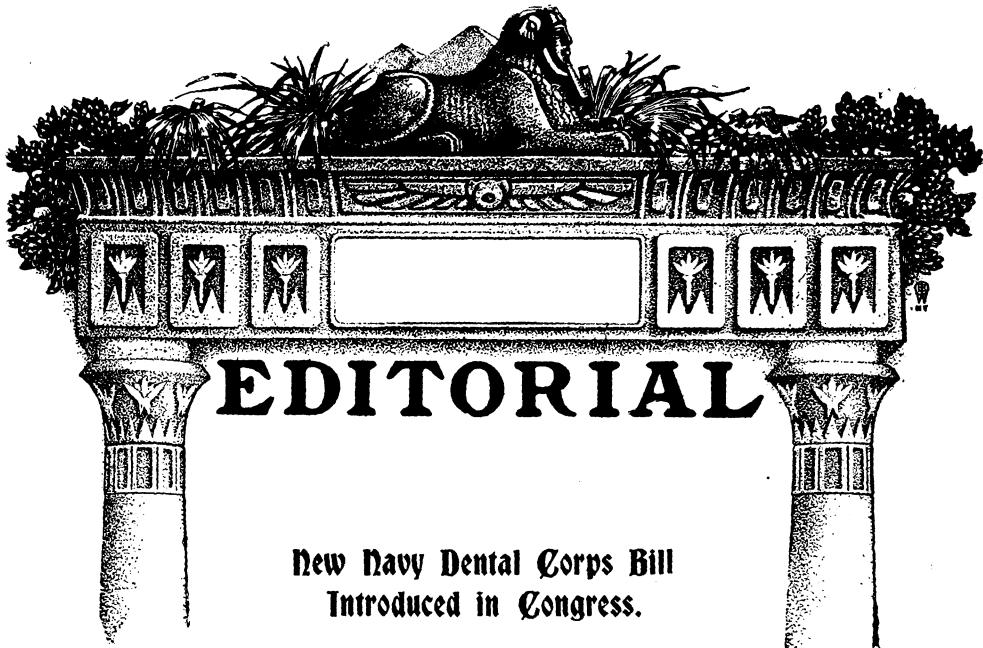
how to make one of those plates. I felt very grateful to him, doubly grateful because he came so far. When I visited Chicago, in Dr. Hart Goslee's office, I saw the same thing. That is a very useful method. My allusion was chiefly to the forms of the teeth, and to the apparatus as a whole, and not to the lower bar principle.

In regard to Dr. Hellman, who asks for a distinction between articulation and occlusion, if I had merely to answer that question, I think I could do it with greater satisfaction than the actual question he asks me, because he asks me if the teeth are arranged in normal occlusion, how one can improve on them. It is quite true you can not improve on what you would term normal or typical occlusion; but many things are meant by normal occlusion by the orthodontist, and this is not in any sense a reflection on the orthodontist. I endeavor to do a little of that work myself, and I am speaking now of my own methods. There are individual cases where we get the right cusp in the right fossa, and the relation is absolutely correct, and we term that normal occlusion; but by a very strict interpretation of that phrase, it is not normal occlusion, because it could hardly be so unless it accorded also with our idea of normal articulation, and I use the two terms with a distinction which Dr. Bonwill himself made between them. Occlusion refers to a state of rest, and articulation refers to what we have come to call generally the articulating relations of the teeth; that is, the relations of the cusps in the various positions in which the two jaws may be brought into contact, the position of occlusion or the occlusion of the teeth referring to that one position alone where the jaws are at rest, and where the upper lingual cusp fits in the lower fossa, or groove. If they really conform to the ideal of normal occlusion, they should also conform to the normal articulation.

I desire to thank you and the Society for your most cordial hospitality which I have enjoyed, and I desire to express my pleasure at being with you on this occasion.

[A very hearty vote of thanks was tendered to Dr. Turner for his interesting paper.]





In our May issue we pointed out editorially, that a prophecy made in Boston at the meeting there of the National Dental Association had come to pass. This prophecy was to the effect that the War Department would itself formulate a bill providing for a commissioned corps of dentists in the army. In the same number we published a copy of such a bill.

On May 9th Mr. Perkins introduced in the Senate a bill providing for a commissioned corps in the navy, and this has the approval of the Navy Department. The point of tremendous interest to the dental profession is to be found in the fact that this bill provides not only for rank, but for three grades, thus giving the men opportunity for promotion.

If this bill can be passed, the Navy Dental Corps will comprise one dentist with rank of lieutenant-commander, four with rank of passed assistant surgeons, and twenty-five assistant and acting assistant surgeons. A lieutenant-commander in the navy is equivalent to a major in the army. Passed assistant surgeon is the same as captain, and assistant surgeon equals a first lieutenant.

The pay of these positions is as follows: Lieutenant-commander, \$2,400 on land; \$2,800 on sea. Passed assistant surgeon, \$2,000 on land; \$2,400 at sea. Assistant surgeon, \$1,500 on land; \$1,800 at sea.

Thus it is seen that the Navy Dental Corps bill provides for rank two grades higher than the Army Dental Corps bill, and this is important, because in his memorandum submitted with the army bill, Surgeon-General Torney said: "It will be observed that the American Dental Association at the last session of Congress strenuously advocated the appointment for the navy of dental surgeons with less pay and no greater permanency in their position than these army dentists, whose position is declared to be unsatisfactory. It is true, however, that they urged an amendment, which was accepted by the Surgeon-General of the Navy, providing, after three-years' service as Acting Assistant Surgeons, for appointment with the rank of Assistant Surgeon, which corresponds to First Lieutenant in the Army Medical Corps." And in another place: "The most recent bill for dental surgeons in the navy provides 30, which is in the proportion of one for about 1,500. There is no doubt that the largest figure would be ample, and it is probable that the naval proportion of 57 would meet the pressing needs of the service."

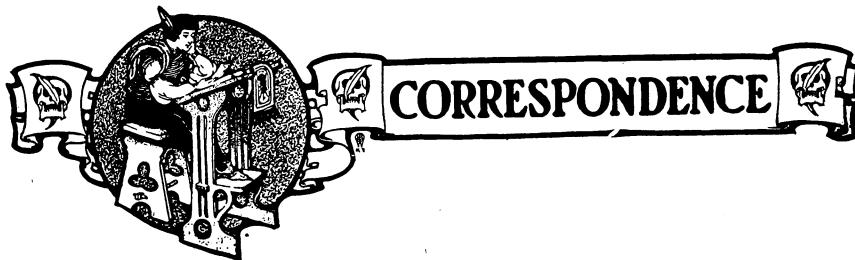
Thus it is seen that it is great folly for our Legislative Committees to be advocating one style of Dental Corps for one department, while accepting with apparent contentment a smaller share of crumbs from the table of the other.

Surgeon-General Torney in his memorandum (see May issue *ITEMS OF INTEREST*) used the Navy bill of that date as an excuse for not granting higher grades of rank in the Army Dental Corps bill. It will therefore be entirely consistent for the dental profession to use the present Navy Dental Corps bill as a lever with which to obtain three similar grades of rank for our Army Dental Corps.

Moreover, if our National Dental Association were already organized along the lines of the American Medical Association with a membership of thousands where we now have hundreds, we probably could have this Navy bill passed, and with it an Army bill amended along similar lines.

Yet some men, at our coming Denver meeting, will probably ask, "What is to be gained by a larger membership?"

A copy of the new Navy bill will be found in this issue.



Reorganization of the National Dental Association.

FRANKLIN, MASS., May 21, 1910.

To the Editor of ITEMS OF INTEREST,

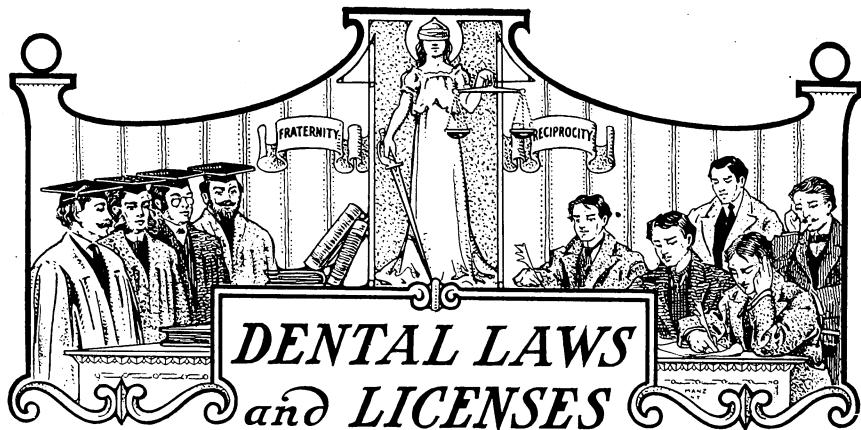
Sir:—After a year's experience as editor of the Massachusetts Dental Society and co-editor in the publication of the *Journal*, I desire to express what that experience has taught me in its bearing upon the proposed reorganization of the National Dental Association and the proposed publication of a National Dental Journal.

I believe that to have real influence, the National Dental Association should be a union of all the State dental societies in their associated activities. The per capita dues of \$2.00 each would then provide a much larger fund than does the present limited membership. I believe the government of this federal union might well be vested in delegates elected by the State societies in proportion to their membership. This would be representative and responsive, and no one should feel aggrieved where all have equal rights.

The National Dental Journal, to be successful, must be conducted in a thoroughly businesslike manner, play no favorites and serve only the general profession and the general public. A national dental journal, adequately supported, would be free to publish any matter or editorials that would serve the interests of its owners, the entire profession; could publish analyses of materials and drugs, could exclude false and illegitimate advertising, expose improper advertising schemes, refuse to support secret nostrums by advertising them, and might serve as the organ of the entire dental profession in advocating legislation and public dental education—in short, afford the whole profession an opportunity to energize in a field heretofore cultivated by limited portions of the profession. I believe that a large membership is essential for adequate financial support, and that representative government is essential for free expression of the profession's wishes.

Yours respectfully,

C. EDSON ABBOTT.



61st Congress, 2d Session. S. 8154.

IN THE SENATE OF THE UNITED STATES.

MAY 9, 1910.

MR. PERKINS introduced the following bill; which was read twice and referred to the Committee on Naval Affairs.

A BILL

To authorize the appointment of dental surgeons in the United States Navy.

1 *Be it enacted by the Senate and House of Representatives*
2 *of the United States of America in Congress assembled, That*
3 *the appointment of not more than thirty dental surgeons be, and*
4 *the same is hereby, authorized, said dental surgeons to be a part*
5 *of the Medical Department of the United States Navy, to*
6 *serve professionally the personnel of the naval service, and to*
7 *perform such other duties as may be prescribed by competent*
8 *authority.*

1 Sec. 2. That there shall be one dental surgeon with the
2 rank of lieutenant-commander, four passed assistant dental sur-
3 geons with the rank of lieutenant, and twenty-five assistant and
4 acting assistant dental surgeons with the rank of lieutenant
5 (junior grade), to be appointed and promoted as hereinbefore
6 provided.

1 Sec. 3. That all original appointments herein authorized
2 shall be made by the Secretary of the Navy in the grade of acting
3 assistant dental surgeon, and all appointees to such grade shall



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4 be citizens of the United States between twenty-four and thirty-
5 two years of age, and shall be graduates of standard medical
6 or dental colleges, trained in the several branches of dentistry,
7 of good moral character, of unquestionable professional repute,
8 and before appointment shall pass satisfactory physical and pro-
9 fessional examinations, including tests of skill in practical
10 dentistry, of proficiency in the several usual subjects in a standard
11 dental college course, and in such other subjects of general edu-
12 cation as are now or may hereafter be required for admision to
13 the Medical Corps of the Navy.

1 Sec. 4. That at the end of three years from the passage of
2 this Act all acting assistant dental surgeons who have had two
3 or more years' service under their original appointment, as herein
4 provided, shall undergo such physical and competitive pro-
5 fessional examinations as the Secretary of the Navy may pre-
6 scribe to determine their fitness to receive commissions in the
7 navy, and if found qualified they shall be appointed assistant
8 dental surgeons, with the rank of lieutenant (junior grade), in
9 the order of standing as determined by the professional examina-
10 tions provided for in this section.

1 Sec. 5. That at the end of three years from the date of the
2 examinations provided for in the next preceding section all assist-
3 ant dental surgeons shall undergo such physical and competitive
4 professional examinations as the Secretary of the Navy may
5 prescribe to determine their fitness for promotion to fill the there-
6 tofore existing vacancies in the grade of passed assistant dental
7 surgeon, and said vacancies shall be filled by the four officers,
8 if qualified, standing highest as a result of the professional ex-
9 aminations provided for in this section and in the order of their
10 standing.

1 Sec. 6. That at the end of five years from the date of the
2 examinations provided for in the next preceding section, the
3 senior officer in the grade of passed assistant dental surgeon
4 shall undergo such physical and professional examinations as the
5 Secretary of the Navy may prescribe to determine his fitness
6 for promotion to fill the theretofore existing vacancy in the
7 grade of dental surgeon, and said vacancy shall be filled by said
8 officer, if qualified, as a result of the professional examinations
9 provided for in this section: *Provided*, That if said officer be
10 found not qualified, the provisions of this section shall apply
11 successively in order of rank to the other officers of lower
12 seniority in said grade of passed assistant dental surgeon.

1 Sec. 7. That after the competitive examinations provided for
2 in section three of this Act have been held, acting assistant dental
3 surgeons thereafter appointed shall serve a probationary period of
4 three years, and upon the completion of such period shall undergo
5 such examinations as the Secretary of the Navy may prescribe
6 to determine their fitness to receive commissions in the navy,
7 and, if found qualified, they shall be appointed assistant dental
8 surgeons, with the rank of lieutenant (junior grade): *Provided*,



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9 That all promotions among said dental surgeons other than the
10 promotions provided for in the three next preceding sections shall
11 be made in the same manner and under the same relative conditions,
12 so far as applicable, as now are or may hereafter be
13 prescribed in pursuance of law for officers of the Medical Corps
14 of the Navy.

1 Sec. 8. That if any acting assistant dental surgeon shall
2 fail upon examinations prescribed in sections four and seven of
3 this Act, he shall be honorably discharged from the naval service,
4 and the appointment of an acting assistant dental surgeon may
5 be revoked at any time in the discretion of the Secretary of the
6 Navy.

1 Sec. 9. That all appointees authorized by this Act shall
2 take rank and precedence in the same manner in all respects as
3 in the case of appointees to the Medical Corps of the Navy, and
4 shall not exercise command over persons in the navy other than
5 dental surgeons and such enlisted men as may be detailed to
6 assist them by competent authority.

1 Sec. 10. That all officers authorized by this Act shall receive
2 the same pay and allowances as officers of corresponding rank
3 and length of service in the Medical Corps of the Navy: *Pro-*
4 *vided*, That acting assistant surgeons in the navy shall receive the
5 same pay and allowances as are now or may hereafter be pro-
6 vided by law for assistant surgeons in the navy.

1 Sec. 11. That all officers authorized by this Act shall be
2 eligible to retirement in the same manner and under the same
3 conditions as officers of the Medical Corps of the Navy: *Pro-*
4 *vided*, That section fourteen hundred and forty-five of the Re-
5 vised Statutes of the United States shall not be applicable to the
6 officers herein authorized: *And provided further*, That the
7 dentist now employed at the Naval Academy shall not be dis-
8 placed by the operation of this Act.

1 Sec. 12. That all appointments authorized by this Act,
2 except the appointment of acting assistant dental surgeons, shall
3 be made by the President, by and with the advice and consent of
4 the Senate.

1 Sec. 13. That all laws and parts of laws inconsistent with
2 the provisions of this Act be, and the same are hereby, repealed.





Opinion on Special Points in Maine's Dental Statutes.

Subject: Dental Registration, Statute of 1891, Reciprocity with Other States.

LANGDON S. CHILCOTT, President,
Board of Dental Examiners of the State of Maine,
Bangor, Maine.

Sir: I have the honor to acknowledge receipt of two inquiries upon which you desire my opinion:

First.—A man who was formerly in the practice of dentistry in this State moved away prior to 1891. He has been in practice in another State, but did not register in Maine in accordance with Section 4 of the Dental Registration Act. He has now returned and desires to re-enter the practice of dentistry in Maine. Can he register without an examination, or has he forfeited his right to do so by his own neglect?

Second.—Can the Board of Dental Examiners of the State of Maine under the present dental law enter into reciprocal agreements with the dental examining boards of other States and accept certificates issued by such State boards in lieu of examination by the Maine board?

Registrations in Maine.

The Dental Registration Act, so-called, was enacted in 1891 and contained some provisions which are now obsolete, and some of the provisions of the act of 1891 have been modified by subsequent acts of the Legislature so that the law as now recorded in R. S., Chap. 17, Secs. 18 to 23, inclusive, is the law of the State to-day, although the wording in some respects differs from the original act of 1891.

Section 4 of the act of 1891 provided as follows:

“Every person engaged in the practice of dentistry or dental surgery in this State at the time of the approval of this act shall, within three months thereafter, cause his or her name, residence and place of business to be registered with said board of examiners. The statements of every such person shall be verified under oath before a notary public or justice of the peace in such manner as may be prescribed by the board, and upon due compliance and payment of the fee as provided in section seven of this act, shall receive from said board a certificate in due form, signed by the president and attested by the secretary authorizing such persons to practice dentistry in this State.”

This provision, you will observe, related only to those who were engaged in the practice of dentistry or dental surgery in this State at the time of the approval of the act. Your question involves the right of a dentist who moved away from this State prior to 1891 and, as I assume from your statement, was not a resident of the State at the



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time of the approval of the act of 1891. The provisions of the act above quoted could not apply to him under any circumstances, for it only applied to those who were engaged in practice in this State at the time of the approval of the act. It will therefore be necessary for him to comply with the law as it now stands as to examination and payment of fees.

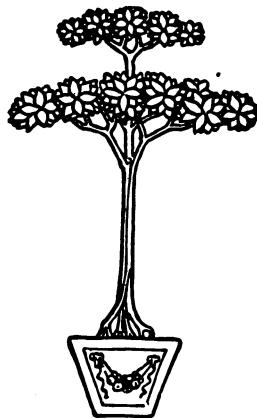
Your second question must be answered in the **Reciprocity**. negative. Examination in certain subjects, as well as the payment of a fee, is made by our law a fundamental prerequisite to the issuance of the certificate referred to as entitling a man to practice dentistry in this State. The Board of Dental Examiners have no power whatever to enter into reciprocal arrangements with dental examining boards of other States whereby a certificate issued by another State would stand in lieu of the examination which the law requires to be made under the statute as it now stands upon the books.

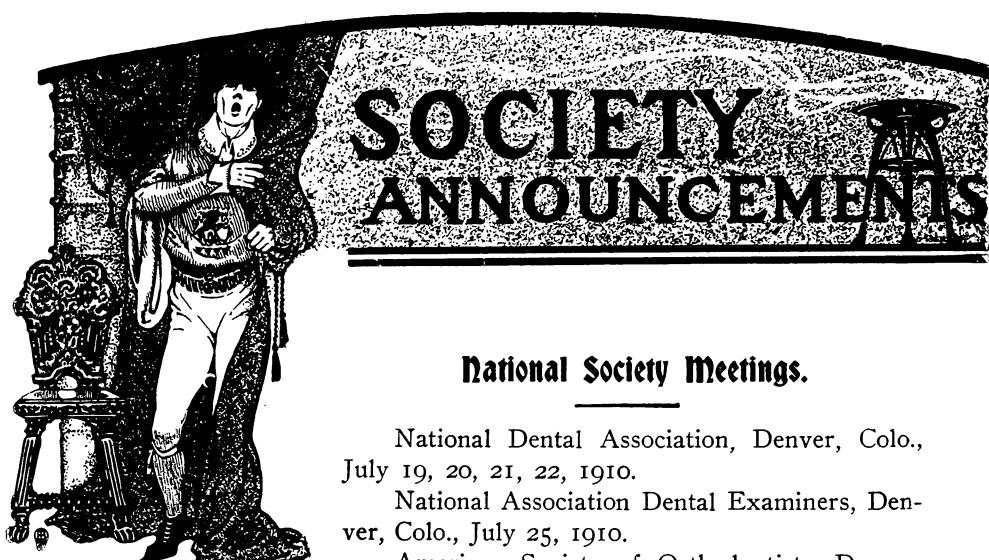
Yours very truly,

(Signed) WARREN C. PHILBROOK,

Waterville, Me., March 22, 1910.

Attorney-General.





National Society Meetings.

National Dental Association, Denver, Colo.,
July 19, 20, 21, 22, 1910.

National Association Dental Examiners, Denver, Colo., July 25, 1910.

American Society of Orthodontists, Denver, Colo., July 13, 14, 15, 1910.

State Society Meetings.

New Jersey State Dental Society, Asbury Park, N. J., July 20, 21, 22, 23, 1910.

Oregon State Dental Association, Portland, Ore., June 30, July 1 and 2, 1910.

Virginia State Dental Association, Staunton, Va., Aug. 3, 4, 5, 1910.

Wisconsin State Dental Society, Ashland, Wis., July 12, 13, 14, 15, 1910.

West Virginia State Dental Society, Parkersburg, W. Va., Oct. 12, 13, 14, 1910.

The Denver Meetings.

The National Dental Association, The National Association of Dental Examiners, National Association Dental Faculties, The American Society of Orthodontists, Delta Sigma Delta Fraternity, and the Psi Omega Fraternity, all meet at Denver during July.

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The hotels of Denver are numerous and adequate. Accommodations may be had for \$1.00 per day and up for room without bath and \$2.00 per day and up for room with bath. A fair average rate will be about \$2.00 and \$3.00 per day for one and two persons, respectively, in room without bath; and \$2.50 to \$4.00 with bath. Rooms and board may also be had in private families.



LONG'S PEAK FROM NEAR DENVER.

Published by courtesy of the Colorado & Southern Railway.

The Brown Palace Hotel will be headquarters for the National Dental Association. Reservations for accommodations should be made in advance through the Publicity Committee.

The entire business of the National Dental Association will be conducted under one roof—the Auditorium—one of the largest convention halls in America. This building, owned and managed by the city, is absolutely fireproof, and is so designed that part of it can be used as a theatre seating about 4,000 people, leaving ample committee-rooms and abundant space for clinics and exhibits. All of these features can be operated without interference with each other.



SOCIETY ANNOUNCEMENTS

The following firms will exhibit:

The S. S. White Dental Mfg. Co.	Ritter Dental Mfg. Co.
The Harvard Co.	W. A. Ivory
A. C. Clark Co.	W. V-B. Ames
The Dentists' Supply Co.	The Apothecaries Co.
Eli Lilly & Co.	James J. Ottinger
Pelton & Crane	Lambert Pharmacal Co.
Horlick's Malted Milk Co.	Kolynos Company
The Denver Chemical Co.	Chas. H. Phillips Chemical Co.
Lee Smith & Son	Mulford & Co.
Dental Protective Supply Co.	Ransom & Randolph
Columbus Dental Mfg. Co.	American Cabinet Co.
Pinches Dental Mfg. Co.	L. D. Mosher
DeVilbiss Mfg. Co.	Electro-Dental Mfg. Co.



GATEWAY TO GARDEN OF THE GODS AND PIKE'S PEAK.

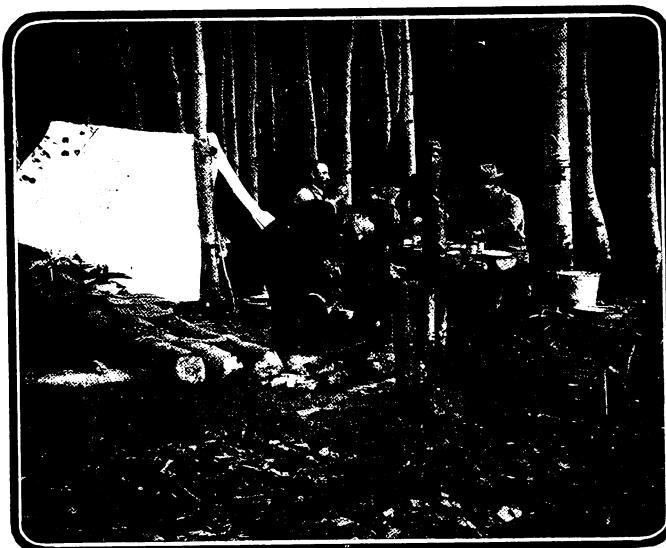
Published by courtesy of Denver & Rio Grande Railroad.

All indications are that the meeting will be a large and interesting one, with a good attendance from all parts of the country. As this will be the first meeting of the National west of the Mississippi River, many will want to attend for the sake of the meeting and the opportunity to see some of the many attractions for which the State of Colorado and the City of Denver are noted.

Colorado is called the "Switzerland of America." President Roosevelt says it is the "playground of America." Denver, the gateway to this wonderful scenery, is justly known as the "Queen City of the Plains." Situated fourteen miles from the foothills, it commands a view of over 250 miles of mountains, while the breezes from these snow-capped peaks, together with its altitude of one mile above the sea-level, provide a climate at once restful and exhilarating.

All who come to Denver, if they would see the real beauties of Colorado's mountains, should avail themselves of some of the innumerable opportunities offered for outings.

There are trips occupying a few hours, a day, or more time; in fact, trips to suit the purse or time of all, each with its special charm, worth seeing and to be remembered always. To enumerate in this article is out



CAMPING IN THE ASPENS.

Published by courtesy of the Colorado & Southern Railway.

of the question, but a few examples may be mentioned: the far-famed Georgetown Loop and Mt. McClellan trip, which reaches an altitude of 14,007 feet, is the highest point reached on any regular railroad in the world.

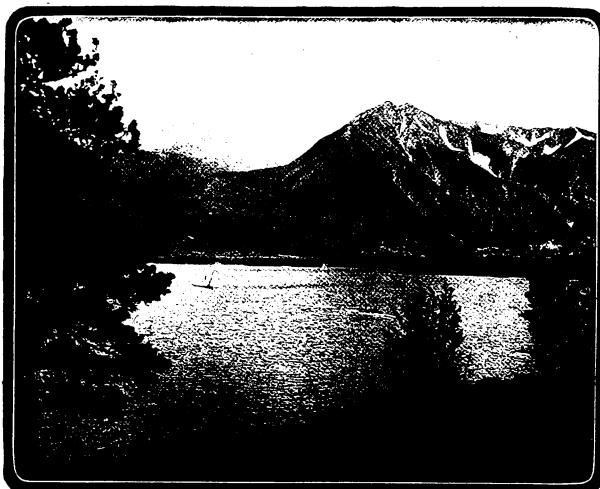
Boulder, where the Colorado Chautauqua is located, is thirty miles from Denver, one-hour's ride; or, continuing the trip, one may take the "Switzerland Trail" route, another of the one-day excursions out of Denver.

Morrison and the Garden of the Titans, which rivals the world-renowned Garden of the Gods at Colorado Springs, is an hour's ride from Denver.

In Platte Cañon, a favorite resort for fishermen, from one to three hours' ride, the railroad follows the cañon of the South Platte River for

about fifty miles, where there are many hotels, cottages and camping-places.

The Moffat Road, in course of construction from Denver to Salt Lake City, is now completed through to Steamboat Springs in the northwest corner of the State. Three-hours' ride from Denver it crosses the continental divide at an altitude of 11,000 feet. It has opened up an empire hitherto almost untouched by the hand of civilization. A country rich in delights to the lover of nature, the hunter and the fisherman.



UPPER TWIN LAKE.

On Denver & Rio Grande Railroad.

Estes Park has become so famous that it promises to be a rival of the other wonder places of the country, such as the Yellowstone National Park and the Yosemite Valley, and is reached in three hours by train and automobile. A movement is now under way to convert this into a National Park.

Colorado Springs, with her beautiful homes and excellent hotels, and Manitou at the base of Pike's Peak, from where one may ascend the mountain by cogwheel train or visit the Garden of the Gods and other picturesque places; Cripple Creek and Victor, the gold-mining camps, can be reached in two hours from Colorado Springs over railroads traversing most beautiful mountains. For longer trips, if one has the time, there is the Midland Road, through Ute Pass, Hellgate and down the Frying Pan River, famous as a trout stream.

Glenwood Springs.—Take the Denver & Rio Grande through the



Royal Gorge over Tennessee Pass and through the Eagle River Cañon to Glenwood Springs, from which point both roads follow down the Grand River Cañon to Grand Junction, which is the heart of the famous peach and apple district.

“The Trip around the Circle.”—Nowhere in the world are there a thousand miles of railroad travel with so much of the beautiful and so many features of interest, scenic and historical, than are to be seen on the “Around the Circle Trip.” This passes through Alamosa in the center of the San Luis Valley, through Durango, Silverton, Ouray and Telluride, through two Indian reservations and the Mesa Verde National Park, set apart by the Government to protect the prehistoric “Ruins of the Cliff Dwellers.”

Side-trips from this tour can be taken to the Wheeler National Park, near Wagon Wheel Gap, on the Rio Grande Del Norte, to Pagosa Springs and to the wonderful natural bridges of southeastern Utah. The Royal Gorge is seen on this trip, and either the Black Cañon of the Gunnison and Marshall Pass, or the Grand River and Glenwood Springs.

It would be out of place not to mention the hot mineral springs of Colorado.

When America shall have made its mark in the pages of classic history, the people of the globe will be making both winter and summer tours across the oceans to the famous watering-places of Colorado, at Glenwood Springs, Pagosa Springs, Sulphur Springs and Steamboat Springs. Few people realize the size, variety and medicinal value of these springs, the ease of access to them, the delightful summer and winter climatic conditions, and the perfect accommodations to be had.

It is hoped that all dentists who come will bring their wives and families with them, as the ladies and children will derive much pleasure and benefit from a vacation in Colorado.

The Committee has arranged to devote the day following the adjournment of the National to an entertainment which will be in keeping with the season and environment.

The railroads running into Denver are: The Union Pacific, Burlington, Rock Island, Santa Fé, Missouri Pacific, Denver & Rio Grande, Colorado & Southern, the Colorado Midland, and the Moffat Road. Summer excursion rates will prevail from all parts of the country, and a more complete announcement will be made next month. From the East round-trip rates to Colorado common points are: Chicago, \$30.00; St. Louis, \$25.00; Omaha and Kansas City, \$17.50. Notice.—It is not generally known that tickets can be purchased through from the East to Colorado Springs and Pueblo at the same rate as to Denver. By doing this the tourist can visit the numerous points of interest south of



Denver (Colorado Springs, Manitou, the Garden of the Gods, Pike's Peak region, Pueblo, etc.) without any additional expense for transportation. These tickets allow unlimited stop-overs, within final limit, in both directions at Denver and Colorado Springs, giving all the time desired to attend the convention, take in the side-trips, etc. Tickets may be validated for return passage at either of the points mentioned, leaving it optional with the purchaser whether the ticket is used south of Denver.

Rates from Texas and the South will be one and one-third fare for round trip.

Rates from the Pacific Coast and return, \$55.

Rates from Salt Lake City, Ogden and other Utah common points and return, \$22.50. From Utah branch-line points add one and one-third fare to main-line junction points. Dates of sale, July 16 and 17; final return limit August 15. Stop-overs in either direction within final limit, no validation to be required.

Local offices for the assistance and direction of guests will be established at the Union Station, the Brown Palace Hotel and the Auditorium.

Immediately upon arrival, visitors are requested to register and give forwarding instructions for mail. In case any change of address is made while in the city, they are requested to notify the committee at once.

Mail addressed "care National Dental Association, Denver, Colo." will insure prompt delivery.

To avoid confusion, all matters pertaining to hotels, railroads, mail and addresses of visitors, and information in general will be mailed through the Publicity Committee.

For detailed information, vacation suggestions, estimates, etc., write to

DR. H. F. HOFFMAN,
Chairman Publicity Committee, N. D. A.
612 California Building, Denver, Colo.

W. D. Miller Dental Club.

The W. D. Miller Dental Club, of Pittsburgh, Pa., was organized in December, 1909, with the object in view of promoting the educational and financial interests of its members. The club is a great success.

JOSEPH N. KATZ, Secretary.

1317 Fifth Avenue, Pittsburgh, Pa.



Vermont and New Hampshire Dental Societies.

At a joint meeting of the Vermont and New Hampshire Dental Societies, which was held at Rutland, Vt., May 17th, 18th, 19th and 20th, the Vermont State Dental Society elected the following officers for the ensuing year: Dr. A. Z. Cutler, Bennington, President; Dr. L. E. Mellen, Middlebury, First Vice-President; Dr. F. H. Brown, Enosburg Falls, Second Vice-President; Dr. Harry F. Hamilton, Newport, Secretary; Dr. W. H. Munsell, Wells River, Treasurer; Dr. Dana E. Dearing, South Royalton. Executive Committee.—Dr. Thomas Mound, Rutland; Dr. W. H. McGoff, Montpelier.

HARRY F. HAMILTON, Secretary.

Newport, Vt.

Eastern Dental Society.

The second year of the Eastern Dental Society's activities were successful both socially and intellectually. The various members have contributed original papers at the first meeting of each month, while the second meeting of the month gave opportunity to our outside friends to come before us with rich intellectual material.

Among the lecturers were Dr. P. B. McCullough, Professor I. Norman Broomell, Dr. A. Bray, and Dr. William H. Trueman.

Several social entertainments were given during the year, and the approach of the closing of the season will be marked by a banquet.

Literary Committee: E. N. Englander, D.D.S., Chairman; Dr. Weiman, Dr. B. S. Krisker.

L. JACOBS, D.D.S., Librarian.

Illinois State Dental Society.

The Illinois State Dental Society held its forty-sixth annual meeting in Springfield, May 17-20, 1910.

The following officers were elected: President, Don M. Gallie, Chicago; vice-president, Geo. C. McCann, Danville; secretary, J. F. F. Waltz, Decatur; treasurer, C. P. Pruyn, Chicago; librarian, Harry F. Lotz, Joliet.

The 1911 meeting will be held in Peoria, May 9, 10, 11, 12.

J. F. F. WALTZ, Secretary.
Decatur, Ill.